



**Program Directory for
TCP/IP Feature for VM/ESA®
and Features**

Function Level 320

Program Number 5654-030

for Use with
VM/ESA Version 2 Release 4.0

Document Date: July, 1999

GI10-4695-00

Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page viii.

This program directory, dated July, 1999, applies to the TCP/IP Feature for VM/ESA (TCP/IP Feature), Program Number 5654-030.

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1.0 Introduction

This program directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation and service of the following:

- TCP/IP Feature for VM/ESA (TCP/IP Feature)
- TCP/IP Network File System (NFS) Feature for VM/ESA
- TCP/IP Source Feature for VM/ESA
- TCP/IP Data Encryption Standard (DES) Feature for VM/ESA

You should read all of this program directory before you install this program, then keep this document for future reference.

The program directory contains the following sections:

- 2.0, "Program Materials" on page 4 identifies the basic and optional program materials and documentation for the TCP/IP Feature for VM/ESA, and its corresponding features.
- 3.0, "Program Support" on page 10 describes the IBM support available for TCP/IP Feature for VM/ESA and its features.
- 4.0, "Program and Service Level Information" on page 13 lists the APARs (program level) and PTFs (service level) incorporated into the TCP/IP Feature for VM/ESA and its features.
- 5.0, "Installation Requirements and Considerations" on page 15 identifies the resources and considerations for installing and using the TCP/IP Feature for VM/ESA and its features.
- 6.0, "Installation Instructions" on page 31 provides detailed installation instructions for the TCP/IP Feature for VM/ESA and its features. These instructions are comprised of the following:
 - 6.2, "Installing the TCP/IP Feature for VM/ESA" on page 32
 - 6.3, "Enabling the TCP/IP NFS Feature for VM/ESA" on page 47
 - 6.4, "Installing the TCP/IP Source Feature for VM/ESA" on page 49
 - 6.5, "Installing the TCP/IP DES Feature for VM/ESA" on page 59
- 7.0, "Service Instructions" on page 72 provides detailed servicing instructions for the TCP/IP Feature for VM/ESA and its features. These instructions are comprised of the following:
 - 7.2, "Servicing the TCP/IP Feature for VM/ESA" on page 74
 - 7.3, "Servicing the TCP/IP NFS Feature for VM/ESA" on page 100
 - Note:** The TCP/IP NFS Feature is serviced as part of the TCP/IP Feature for VM/ESA.
 - 7.4, "Servicing the TCP/IP Source Feature for VM/ESA" on page 101
 - 7.5, "Servicing the TCP/IP DES Feature for VM/ESA" on page 102
- Appendix A, "The TCP2PROD Command" on page 115 provides information about the TCP2PROD command, supplied for placing TCP/IP Feature files into production.

- Appendix B, “Modifying TCP/IP Feature CATALOG Files” on page 121 provides information about how to change TCP/IP Feature CATALOG files using a VMSES/E local modification.
- Appendix C, “Making Local Modifications to TCP/IP Feature Modules” on page 125 provides information to help you implement local modifications to TCP/IP Feature modules.
- Appendix D, “Modifying TCP/IP NFS Feature VMNFS Code” on page 135 provides information specific to TCP/IP NFS Feature VMNFS module local modifications.
- Appendix E, “TCP/IP Feature Build Lists” on page 137 provides information about the VMSES/E build lists used to maintain the TCP/IP Feature.
- Appendix F, “Moving the TCP/IP Feature to SFS Directories” on page 140 provides instructions for changing the TCP/IP Feature service environment to use Shared File System directories instead of default minidisks.
- Appendix G, “Copying TCP/IP Feature Client Code to the Y-Disk” on page 145 provides considerations and instructions for copying client files to the system Product Code minidisk.
- Appendix H, “Disabling the TCP/IP and TCP/IP NFS Features” on page 148 provides information about deactivating the TCP/IP and TCP/IP NFS services.

Before you install the TCP/IP Feature for VM/ESA, read 3.1, “Preventive Service Planning” on page 10. This section tells you how to find any updates to the information and procedures in this program directory.

1.1 Program Description

TCP/IP (Transmission Control Protocol/Internet Protocol) enables VM/ESA customers to participate in a multivendor, open networking environment using the TCP/IP protocol suite for communications and interoperability. The applications provided in TCP/IP include the ability to transfer files, send mail, log on a remote host, allow access from any other TCP/IP node in the network, and perform other network client and server functions.

The Transmission Control Protocol/Internet Protocol Feature for VM/ESA, Function Level 320, (TCP/IP Feature for VM/ESA) contains the functions provided by TCP/IP Feature for VM/ESA Function Level 310, and provides the following enhancements:

- Dynamic TCP/IP (*Stack*) server buffer allocation
- Native Asynchronous Transfer Mode (ATM) support
- Expanded **OBEY** command processing that includes support for the *InternalClientParms* and *AssortedParms* statements
- RouteD server support for RIP Version 2, Virtual IP Addressing (VIPA), and variable subnetting
- FTP server user exit and SMSG administrative interfaces, “FTP to Reader” support, and FTP welcome banner customization
- Addition of framework to support SMTP service extensions, which includes 8BITMIME and SIZE service extension support

- FTP and NFS server improvements for user authorization processing
- NFS server upgrades to support “Version 3,” TCP transport protocol and SMSG administrative commands
- Miscellaneous documentation improvements
- Incorporation of miscellaneous service APARs for previous IBM TCP/IP for VM releases

2.0 Program Materials

An IBM program is identified by a program number. The program number for the TCP/IP Feature for VM/ESA is 5654-030.

The VM/ESA Version 2 Release 4.0 program announcement material describes the features supported by the TCP/IP Feature for VM/ESA. Ask your IBM marketing representative for this information if you have not already received a copy.

The following sections identify:

- basic and optional program materials available with this program
- publications useful during installation.

2.1 Obtaining Authorization for the TCP/IP or TCP/IP NFS Feature

Authorization and Ordering Information

Before you USE or ENABLE either of the following program features:

- TCP/IP Feature for VM/ESA
- TCP/IP NFS Feature for VM/ESA

you MUST be authorized for their use. Authorization is obtained by placing an order with IBM for the program feature you want to use. These features can be ordered when you order VM/ESA Version 2 Release 4.0, by selecting the following when you review the list of available VM/ESA features:

- TCP/IP Feature Base
- TCP/IP Feature NFS

If you need ordering assistance for either of these features, contact your IBM representative.

2.2 Basic Machine-Readable Material

The TCP/IP Feature for VM/ESA is distributed as part of the VM/ESA Version 2 Release 4.0 System DDR. If necessary, see the *VM/ESA Version 2 Release 4.0 Program Directory* for more information about the distribution media for VM/ESA Version 2 Release 4.0.

2.3 Optional Machine-Readable Material

There are three features associated with the TCP/IP Feature for VM/ESA:

- TCP/IP NFS Feature for VM/ESA
- TCP/IP Source Feature for VM/ESA
- TCP/IP DES Feature for VM/ESA

2.3.1 Optional Machine-Readable Material for the TCP/IP NFS Feature for VM/ESA

Executable files for the TCP/IP NFS Feature for VM/ESA are distributed as part of the TCP/IP Feature for VM/ESA. However, **you must separately order** the TCP/IP NFS Feature for VM/ESA before you enable and use the code associated with this feature. For ordering information, see 2.1, “Obtaining Authorization for the TCP/IP or TCP/IP NFS Feature” on page 4.

TCP/IP NFS Feature source files are distributed with the TCP/IP Source Feature for VM/ESA; details about optional machine-readable material for this feature are provided in 2.3.2, “Optional Machine-Readable Material for the TCP/IP Source Feature for VM/ESA.”

2.3.2 Optional Machine-Readable Material for the TCP/IP Source Feature for VM/ESA

The distribution medium for this program is 9-track magnetic tape (written at 6250 BPI), 3480 tape cartridge, 4-mm tape cartridge, or CD-ROM. The tape or cartridge contains all the programs and data needed for installation. See 6.0, “Installation Instructions” on page 31 for more information about how to install the program. Figure 1 describes the tape or cartridge. Figure 2 describes the file content of the program tape or cartridge.

Figure 1. Basic Material: Program Tape for the TCP/IP Source Feature for VM/ESA

Feature Number		Medium	Physical Volume	Tape Content	External Tape Label
Function-HLI	BAU				
6065-3401	5746	6250 tape	1	TCP/IP Source Feature for VM/ESA	TCP/IP VM Source
6065-3404	5747	3480 cart.	1	TCP/IP Source Feature for VM/ESA	TCP/IP VM Source
6065-3410	5748	CD-ROM	1	TCP/IP Source Feature for VM/ESA	TCP/IP VM Source
6065-3431	5749	4-mm cart.	1	TCP/IP Source Feature for VM/ESA	TCP/IP VM Source

Figure 2. Program Tape: File Content for the TCP/IP Source Feature for VM/ESA

Tape File	Content
1	Tape Header
2	Tape Header
3	Product Header
4	Product Memo
5	Service Apply Lists
6	PTFPARTs
7	TCP/IP Source Service
8	TCP/IP Source Service
9	TCP/IP Source Source Files

2.3.3 Optional Machine-Readable Material for the TCP/IP DES Feature for VM/ESA

The distribution medium for this program is 9-track magnetic tape (written at 6250 BPI), 3480 tape cartridge, 4-mm tape cartridge, or CD-ROM. The tape or cartridge contains all the programs and data needed for installation. See 6.0, "Installation Instructions" on page 31 for more information about how to install the program. Figure 3 describes the tape or cartridge. Figure 4 on page 7 describes the file content of the program tape or cartridge.

Figure 3. Basic Material: Program Tape for the TCP/IP DES Feature for VM/ESA

Feature Number		Medium	Physical Volume	Tape Content	External Tape Label
Function-HLI	BAU				
6066-3401	5750	6250 tape	1	TCP/IP DES Feature for VM/ESA	TCP/IP VM Kerb(DES)
6066-3404	5751	3480 cart.	1	TCP/IP DES Feature for VM/ESA	TCP/IP VM Kerb(DES)
6066-3410	5752	CD-ROM	1	TCP/IP DES Feature for VM/ESA	TCP/IP VM Kerb(DES)
6066-3431	5753	4-mm cart.	1	TCP/IP DES Feature for VM/ESA	TCP/IP VM Kerb(DES)

Figure 4. Program Tape: File Content for the TCP/IP DES Feature for VM/ESA

Tape File	Content
1	Tape Header
2	Tape Header
3	Product Header
4	Product Memo
5	Service Apply Lists
6	PTFPARTs
7	TCP/IP DES Service
8	TCP/IP DES Service
9	TCP/IP DES Non-Executable Feature Files
10	TCP/IP DES DES Code
11	TCP/IP DES Base Code
12	TCP/IP DES Source Files

2.4 Program Publications

The following sections identify the basic and optional publications associated with the TCP/IP Feature for VM/ESA. There are no additional publications for the TCP/IP Source and TCP/IP DES features.

2.4.1 Basic Program Publications

The publications associated with the TCP/IP Feature are listed in Figure 5.

Figure 5. Basic Material: Unlicensed Publications

Publication Title	Form Number
TCP/IP Function Level 320 Planning and Customization	SC24-5847
TCP/IP Function Level 320 User's Guide	SC24-5848
TCP/IP Function Level 320 Programmer's Reference	SC24-5849
TCP/IP Function Level 320 Messages and Codes	GC24-5850
TCP/IP Function Level 320 Diagnosis Guide	GC24-5851

One copy of the following program publication is provided at no charge to licencees of the TCP/IP Feature:

- TCP/IP Function Level 320 Planning and Customization

When Feature Number 7216 is ordered along with VM/ESA Version 2 Release 4.0, one copy of the following program publications is provided at no charge to TCP/IP Feature licencees:

- TCP/IP Function Level 320 User's Guide
- TCP/IP Function Level 320 Messages and Codes

When Feature Number 8367 is ordered along with VM/ESA Version 2 Release 4.0, one copy of the following program publications is provided **at a charge** to TCP/IP Feature licencees:

- TCP/IP Function Level 320 Programmer's Reference
- TCP/IP Function Level 320 Diagnosis Guide

For additional copies of any TCP/IP Feature publication, contact your IBM representative.

2.4.2 Optional Program Publications

There are no optional program publications which can be ordered.

2.4.3 Softcopy Publications

TCP/IP Feature for VM/ESA softcopy publications are provided as part of the VM/ESA Online Library that is installed as part of the VM/ESA Version 2 Release 4.0 System DDR. These publications are also included in the VM Collection kit CD-ROM.

2.5 Microfiche Support

There is no microfiche for the TCP/IP Feature for VM/ESA.

2.6 Publications Useful During Installation and Service

The publications listed in Figure 6 may be useful during the installation and service of the TCP/IP Feature for VM/ESA and its corresponding features. To order copies, contact your IBM representative.

Figure 6 (Page 1 of 2). Publications Useful During Installation / Service on VM/ESA Version 2 Release 4.0

Publication Title	Form Number
VMSES/E Introduction and Reference	GC24-5837
VM/ESA Service Guide	GC24-5838
VM/ESA Planning and Administration	SC24-5750
VM/ESA CMS Command Reference	SC24-5776

Figure 6 (Page 2 of 2). Publications Useful During Installation / Service on VM/ESA Version 2 Release 4.0

Publication Title	Form Number
VM/ESA File Pool Planning, Administration and Operation	SC24-5751
VM/ESA System Messages and Codes	GC24-5841
TCP/IP Function Level 320 Planning and Customization	SC24-5847
TCP/IP Function Level 320 User's Guide	SC24-5848

3.0 Program Support

This section describes the IBM support available for the TCP/IP Feature for VM/ESA.

3.1 Preventive Service Planning

Before you install the TCP/IP Feature for VM/ESA, or any of its corresponding features, check with your IBM Support Center or use IBMLink™ to see if additional Preventive Service Planning (PSP) information is available that you should know. To obtain this information, specify the following UPGRADE and SUBSET values:

Figure 7. PSP Upgrade and Subset ID

Retain				
COMPID	Release	Upgrade	Subset	Component Name
5735FAL00	320	TCPIP320(1*)	VM320 (1*)	TCP/IP Feature for VM/ESA
5735FAL00	321	TCPIP320	VM320	TCP/IP DES Feature for VM/ESA
5735FAL00	322	TCPIP320	VM320	TCP/IP Source Feature for VM/ESA
5735FAL00	320	TCPIP320	yynnRSU	RSU Service Recommendations
5735FAL00	320	TCPIP320	RSU-BY-PTF	Sorted by PTF
5735FAL00	320	TCPIP320	RSU-BY APAR	Sorted by APAR
5735FAL00	320	TCPIP320	RSU-BY-LEVEL	Sorted by RSU level

Notes:

1. These UPGRADE and SUBSET values are also used for the TCP/IP NFS Feature for VM/ESA.

3.2 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. If an APAR (or, Authorized Program Analysis Report) is required, the Support Center will provide the address to which any needed documentation can be sent.

Figure 8 on page 11 identifies the Component ID (COMPID), Retain Release and Field Engineering Service Number (FESN) for the TCP/IP Feature for VM/ESA, and its corresponding features.

Figure 8. Component IDs

Retain			
COMPID	Release	Component Name	FESN
5735FAL00	320	TCP/IP Feature for VM/ESA (1*)	0461035
5735FAL00	321	TCP/IP DES Feature for VM/ESA	0461035
5735FAL00	322	TCP/IP Source Feature for VM/ESA	0461035

Notes:

1. The FESN for this component is also used for the TCP/IP NFS Feature for VM/ESA.

3.3 Service Information

The IBM Software Support Center provides you with telephone assistance in problem diagnosis and resolution. You can call the IBM Software Support Center at any time; you will receive a return call within eight business hours (Monday—Friday, 8:00 a.m.—5:00 p.m., local customer time). The number to call is:

1-800-237-5511

Outside of the United States or Puerto Rico, contact your local IBM representative or your authorized supplier.

Some installation and service-related information, such as the Preventive Service Planning (PSP) “bucket,” is also available on-line, via the TCP/IP Feature home page on the World Wide Web. The URL for this home page is:

<http://www.ibm.com/s390/vm/related/tcpip/>

3.3.1 Problem Documentation

When working with TCP/IP Feature support personnel on problems associated with an active Problem Management Record (PMR), diagnostic information may be occasionally requested. In such cases, the support staff will work with you to determine how to best provide the requested documentation. For reference, addresses that can be used to submit various documentation formats are listed in this section.

Note: The addresses that follow cannot be used as a problem reporting facility. All requests for problem assistance must be processed through the IBM Software Support Center, as previously described. Documentation submitted to any of these addresses will be reviewed only if it is associated with an active PMR.

Figure 9. Problem Documentation Addresses

Format	Address
Internet	vmtcpdoc@vnet.ibm.com
IBM Mail	USIB6AZU @ IBMMAIL
IBMLink	GDLVM7(TCPLVL2)
Carrier Service	IBM Corporation Attention: <i>IBM contact name</i> Dept. G79G 1701 North St. Endicott, NY 13760

3.3.2 Communicating Your Comments to IBM

If you have comments about or suggestions for the TCP/IP Feature for VM/ESA program product, or this Program Directory, you can provide them to IBM through one of the following:

- If you prefer to send comments by mail, use the address provided with the Reader's Comments form (RCF) at the back of this document.
- If you prefer to send comments electronically, use this Internet e-mail ID:
vmtcpip@vnet.ibm.com

When sending documentation-related comments, please include:

- the title of this publication
- the section title, section number, or topic to which your comment applies.

4.0 Program and Service Level Information

This section identifies the program level and any relevant service levels of the TCP/IP Feature for VM/ESA, and its corresponding features. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs shipped with this product. Information about the cumulative service tape is also provided.

4.1 Program Level Information - TCP/IP Feature for VM/ESA

The following APAR fixes against previous releases of the IBM TCP/IP for VM program product have been incorporated into this function level.

PN86745	PQ03639	PQ04382	PQ04382	PQ06249	PQ08178	PQ08858
PQ09483	PQ09538	PQ09929	PQ10502	PQ11050	PQ11159	PQ11186
PQ11457	PQ11713	PQ11731	PQ11739	PQ11997	PQ12200	PQ12733
PQ12856	PQ12861	PQ12862	PQ12863	PQ12864	PQ12865	PQ13063
PQ13078	PQ13118	PQ13267	PQ13337	PQ13457	PQ13549	PQ13975
PQ14175	PQ14267	PQ14324	PQ14324	PQ14349	PQ14486	PQ14504
PQ14517	PQ14520	PQ14521	PQ14522	PQ14554	PQ14556	PQ14559
PQ14565	PQ14606	PQ14643	PQ14654	PQ14697	PQ14698	PQ14723
PQ14729	PQ14730	PQ14734	PQ14774	PQ14800	PQ14813	PQ14823
PQ15081	PQ15120	PQ15128	PQ15132	PQ15248	PQ15277	PQ15282
PQ15286	PQ15298	PQ15305	PQ15380	PQ15424	PQ15473	PQ15508
PQ15508	PQ15772	PQ15776	PQ15776	PQ15805	PQ15975	PQ16149
PQ16181	PQ16187	PQ16478	PQ16525	PQ16565	PQ16631	PQ16942
PQ17077	PQ17103	PQ17169	PQ17567	PQ17603	PQ17871	PQ18253
PQ18389	PQ18391	PQ18391	PQ18558	PQ18612	PQ18746	PQ18861
PQ18910	PQ19116	PQ19223	PQ19375	PQ19377	PQ19405	PQ19407
PQ19409	PQ19520	PQ19521	PQ19566	PQ19578	PQ19761	PQ19769
PQ19902	PQ20008	PQ20227	PQ20319	PQ20355	PQ20496	PQ20513
PQ20517	PQ20534	PQ20594	PQ20601	PQ20805	PQ20807	PQ20919
PQ20955	PQ21233	PQ21302	PQ21340	PQ21392	PQ21409	PQ21487
PQ21531	PQ21625	PQ21703	PQ21816	PQ21844	PQ22038	PQ22144
PQ22151	PQ22182	PQ22305	PQ22305	PQ22601	PQ22678	PQ22873
PQ22959	PQ23024	PQ23067	PQ23278	PQ23279	PQ23280	PQ23319
PQ23373	PQ23790	PQ23925	PQ24067	PQ24069	PQ24183	PQ24267
PQ24286	PQ24313	PQ24402	PQ24466	PQ24662	PQ24709	PQ25531
PQ 25640	PQ26219					

4.2 Program Level Information - TCP/IP NFS Feature for VM/ESA

The following APAR fixes against previous releases of the IBM TCP/IP for VM NFS Feature program product have been incorporated into this function level.

PQ12858 PQ13794 PQ15613 PQ16183 PQ16301 PQ18378 PQ19040
PQ22441 PQ23150 PQ25278

4.3 Program Level Information - TCP/IP DES Feature for VM/ESA

The following APAR fixes against the previous release of the IBM TCP/IP for VM US Kerberos Feature program product have been incorporated into this function level.

There are no applicable APAR fixes for this feature.

4.4 Service Level Information

Check the TCPIP320 PSP bucket for any additional PTFs that should be installed or any additional install information you should be aware of before you install the TCP/IP Feature for VM/ESA, or any of its corresponding features.

4.5 Cumulative Service (RSU) Tape Information

Cumulative service for the TCP/IP Feature for VM/ESA is available through a periodic preventive service tape, the Recommended Service Upgrade (RSU). The current level of the TCP/IP Feature RSU can be obtained using the information provided in Figure 10:

Figure 10. Cumulative Service (RSU) Tape Information

Retain			
COMPID	Release	APAR Number	PTF
5735FAL00	RSU	PQ25525	UQ99320

Note: Cumulative service is not provided for the TCP/IP Source and TCP/IP DES features.

5.0 Installation Requirements and Considerations

The following sections identify system requirements for installing and activating the TCP/IP Feature for VM/ESA, and its corresponding features.

5.1 Hardware Requirements

There are no special hardware requirements to install the TCP/IP Feature for VM/ESA, or its features. Additional hardware requirements for exploiting specific functions of the TCP/IP Feature for VM/ESA and its features are documented in the announcement material and in *TCP/IP Function Level 320 Planning and Customization* (SC24-5847).

5.2 Program Considerations

The following sections list the programming considerations for installing the TCP/IP Feature for VM/ESA and its features, and activating their functions.

5.2.1 Operating System Requirements

The TCP/IP Feature for VM/ESA requires the following operating system:

- VM/ESA Version 2 Release 4.0
- CMS Level 15

5.2.2 Other Program Product Requirements

5.2.2.1 Other Program Product Requirements - TCP/IP Feature for VM/ESA

IBM C for VM/ESA Version 3 Release 1 (5654-033) has been used to build the C components that provide the following TCP/IP Feature for VM/ESA services. To use these services, the Language Environment® run-time library must be available:

- Domain Name Server virtual machine (NAMESRV)
- NCS Local and Global Location Broker daemons (NCS, NCSLLBD, and NCSGLBD)
- Network Data Base servers (NDBPMGR and NDBSRV nn)
- Portmapper server (PORTMAP)
- Remote Execution daemon (REXECD and RXAGENT n)
- RouteD server (ROUTED)
- SNMP Query Engine and Agent (SNMPD and SNMPQE)
- Sockets Applications Programming Interface
- Network File System server (VMNFS)
- Kerberos Authentication and Administrator Servers (VMKERB and ADMSERV)

Various client functions require Language Environment run-time library support as well. Representative of these are:

- CMSRESOL and CMSRESXA
- CPP
- DIG
- NSLOOKUP
- RPCGEN and RPCINFO
- UUID_GEN
- NDBSRVS

The Language Environment run-time library necessary to use these C components — the Common Execution Library (CEL) — is supplied with VM/ESA Version 2 Release 4.0.

Note: By default, the code for the above services is installed when you install the TCP/IP Feature for VM/ESA, regardless of whether or not you intend to use all, or only a subset, of these services.

Additional software requirements for exploiting specific functions of the TCP/IP Feature for VM/ESA are documented in the announcement material and in *TCP/IP Function Level 320 Planning and Customization* (SC24-5847).

5.2.2.2 Other Program Product Requirements - TCP/IP NFS Feature for VM/ESA

The requirements to install and service the TCP/IP NFS Feature for VM/ESA are the same as those for the TCP/IP Feature for VM/ESA.

5.2.2.3 Other Program Product Requirements - TCP/IP DES Feature for VM/ESA

The requirements to install and service the TCP/IP DES Feature for VM/ESA are the same as those for the TCP/IP Feature for VM/ESA.

5.2.3 Program Installation/Service Considerations

This section describes items that should be considered before you install or service the TCP/IP Feature for VM/ESA and its features.

- You are **authorized to enable** the TCP/IP Feature only **if you have previously ordered this feature** and you are running VM/ESA Version 2 Release 4.0.
- VMSES/E is required to install and service this product.
- If multiple users install and maintain licensed products on your system, you may encounter problems getting the necessary access to the MAINT 51D minidisk. If you find there is contention for write access to the 51D minidisk, you can eliminate it by converting the Software Inventory from minidisk to Shared File System (SFS). See the *VMSES/E Introduction and Reference*, Chapter 18 “Changing the Software Inventory to an SFS Directory,” for information about how to make this change.
- The **P735FALT** user ID is used to install and service the TCP/IP Feature for VM/ESA and its corresponding features. This is the IBM suggested user ID name. You are free to change this to any

user ID name you wish; however, a PPF override to implement such a change must be created for the TCP/IP Feature for VM/ESA and each additional TCP/IP feature that you install.

- The TCP/IP Feature for VM/ESA, and its corresponding features, each have several defined components. The component you need to use for installation and service depends on whether you maintain the default minidisk installation environment or move the TCP/IP Feature service disks to Shared File System directories. For each feature, you need to choose one of the listed components that follow.

Note: Certain minidisks **must** be defined and used with TCP/IP server machines, even when the TCP/IP Feature service minidisks are moved to Shared File System directories. This requirement is explained further in item 5 of 5.3, “DASD Storage and User ID Requirements” on page 21.

The components for the TCP/IP Feature for VM/ESA are:

- **TCPIP** - install and service the TCP/IP Feature using minidisks
- **TCPIPSFS** - install and service the TCP/IP Feature using the Shared File System

The components for the TCP/IP Source Feature for VM/ESA are:

- **SOURCE** - if the TCP/IP Feature is installed and serviced using minidisks
- **SOURCESFS** - if the TCP/IP Feature is installed and serviced using the Shared File System

The components for the TCP/IP DES Feature for VM/ESA are:

- **KERBDES** - if the TCP/IP Feature is installed and serviced using minidisks
 - **KERBDESSFS** - if the TCP/IP Feature is installed and serviced using the Shared File System
- During the installation and service processes, you may need to perform additional steps to account for errors that cannot be corrected through the service process. If such steps are required, additional notes and text which explain those steps will be included in updated levels of this document.

Several additional considerations for the TCP/IP Source, TCP/IP NFS, and TCP/IP DES features follow:

- You are **authorized to enable** the TCP/IP NFS Feature only **if you have previously ordered** the TCP/IP *and* TCP/IP NFS features, and you are running VM/ESA Version 2 Release 4.0.
- Enable the TCP/IP NFS feature using the TCP/IP Feature installation and service user ID, **P735FALT**, or your chosen equivalent.
- Install the TCP/IP Source and TCP/IP DES features using the TCP/IP Feature installation and service user ID, **P735FALT**, or your chosen equivalent.
- The TCP/IP Source and TCP/IP DES features use the same installation and service minidisks and SFS directories as the TCP/IP Feature for VM/ESA.
- **Before** the TCP/IP Source Feature is installed, you **must** increase the storage allocated for the **Source** minidisk (**P735FALT 2B3**, by default) or its equivalent SFS directory to meet the requirements listed in Figure 12 on page 30.

For the TCP/IP DES Feature, the default storage allocation for this minidisk is sufficient to accommodate the source files supplied with this feature.

- Source files are shipped in packed format. You will need to unpack these files before you can use them.

5.2.4 Migration Considerations

In addition to the introduction of new TCP/IP functions, there have been changes to some existing functions. In a few cases, functions have been deleted or replaced by alternative functions. This section describes these changes or deletions.

TCP/IP and related features are supported on associated releases of CP and CMS only.

5.2.4.1 Packaging

- TCP/IP Function Level 320 is included as a priced feature of the VM/ESA product, requiring that you have a license from IBM for its use. To use the TCP/IP feature, **it must be enabled** using the correct feature code before it can be used.
- The Network File System (NFS) is a separately licensed and priced feature of VM/ESA. Like the base TCP/IP feature, it is included with the VM/ESA product, but must be enabled before it can be used.
Note: Information about enabling the TCP/IP and NFS features is included within this document.
- The non-DES Kerberos functions are included in the base TCP/IP feature. The DES Kerberos functions are available as a separate feature that must be separately installed.
- A subset of RSCS Version 3 Release 2 function is available with the VM/ESA product to provide enhanced TCP/IP client and server print capabilities. RSCS functions not related to TCP/IP printing enhancements require a separate RSCS license for use. Refer to the *RSCS Version 3 Release 2 Program Directory* for additional information.
- This level of TCP/IP is not separately orderable, though it is serviced separately from the VM/ESA product.
- Support for TCP/IP-based e-mail is included in CMS. The TCP/IP for VM versions of NOTE and SENDFILE are no longer provided.
- TCP/IP softcopy publications are included with the other VM/ESA softcopy publications.
- This level of TCP/IP relies on the presence of certain functions in CP and CMS. Abends and incorrect results are possible if you attempt to use it with an older level of CP or CMS.

5.2.4.2 Server Configuration

- Separate server initialization execs (TCPIPXIT, FTPDEXIT, etc.) are no longer used. All server parameters and features are controlled by entries contained in a DTCPARMS file. There is support for you to supply an exit specific to a particular server, or an exit that is used by all servers, for customization needs that cannot be met using a customized SYSTEM DTCPARMS file.
- Changing server names (when defining a second set of TCP/IP servers, for example) no longer requires changes to IBM-provided execs. All information related to the user ID of a particular server is

kept in the TCPIP DATA file, or is part of the server configuration and is maintained in the DTCPARMS file.

- External Security Manager (ESM) interfaces have been standardized across all servers. The RPIUCMS command will be used to initialize the RACROUTE environment, and RPIVAL will be used to validate user IDs and passwords supplied by clients. These commands can be changed using a customized SYSTEM DTCPARMS file.
- The ESM environment is automatically established for a server when :ESM_Enable.YES is specified for that server in a customized SYSTEM DTCPARMS file.

Refer to Chapter 3, “TCP/IP Server Configuration” of *TCP/IP Function Level 320 Planning and Customization* for more information.

5.2.4.3 TCPIP Server

- The **TIMESTAMP** statement default has been changed from **TIMESTAMP 0** to **TIMESTAMP PREFIX**, which specifies that a time stamp will prefix every trace and console message. This change helps in diagnosing problems and isolating error conditions. Therefore, it is recommended that any existing TCP/IP server configuration files be changed to specify **TIMESTAMP PREFIX** to aid in problem determination.
- The Telnet session connection exit interface has been changed to pass the LU name supplied by a client, if any, as an additional parameter. Existing exits may need to be changed to accommodate this behavior.
- The Telnet printer management exit is called for any printer session, regardless of whether the client LU name and IP address are defined by a TN3270E statement in the TCP/IP configuration file. Existing exits may need to be changed to accommodate this behavior.

5.2.4.4 Routed Server

- The **#CP EXTERNAL** command can no longer be used to terminate Routed server. The command to stop Routed is **#CP SMSG * SHUTDOWN**.

5.2.4.5 SMTP Server

5.2.4.5.1 Migration from TCP/IP Function Level 310

- There are no considerations for this migration path.

5.2.4.5.2 Migration from IBM TCP/IP for VM Version 2 Release 4

- The **DEBUG** configuration file statement is no longer supported. A new **TRACE** statement has been added which, when specified with the **DEBUG** parameter, will provide identical function as the **DEBUG** statement, except that output goes to only the console; there is no debug file support. Refer to Chapter 20, “Configuring the SMTP Virtual Machine” of *TCP/IP Function Level 320 Planning and Customization* for more information about the **TRACE** statement and additional parameters that can be specified.

- The default for the **WARNINGAGE** configuration file statement has been reduced from 3 days to 1 day.
- Due to the addition of new trace options, the **TRACE** SMSG command now requires additional options to be specified. In previous TCP/IP for VM releases, the **TRACE** SMSG command was used to trace host name resolution via name servers. This SMSG command has been replaced with the **TRACE RESOLVER** SMSG command. Similar results can be achieved by specifying the TRACE RESOLVER statement in the SMTP configuration file. Refer to Chapter 20, “Configuring the SMTP Virtual Machine” of *TCP/IP Function Level 320 Planning and Customization* for more information about configuration file changes, and to the *TCP/IP Function Level 320 User's Guide* for SMTP SMSG command interface changes.
- The SMTP DATA file is no longer needed. The **ATSIGN** statement previously supported using this file has been incorporated within the TCPIP DATA file.
- The sample SMTP configuration file (SMTP SCONFIG) has been modified to change the **LOCALFORMAT** and **RSCSFORMAT** default from “PUNCH” to “NETDATA” (NETDATA was already the default).
- The SMTP-EXP exec is no longer needed. Host names for mail items can now be flagged to be re-resolved using the **REPROCESS** SMSG command. Refer to Chapter 20, “Configuring the SMTP Virtual Machine” of *TCP/IP Function Level 320 Planning and Customization* for more information.
- SMTP work files (NOTE and ADDRBLK files) have new formats and names; the file types for these files have been changed to NOTEFILE and ADDRFILE, respectively. When migrating from IBM TCP/IP for VM Version 1 or Version 2, any NOTE or ADDRBLK files present on the SMTP server A-disk will be converted to the new format and renamed; such converted files cannot be processed by previous versions of TCP/IP for VM.

5.2.4.6 FTP Server

- The FTP server has been enhanced to exploit new CP and CMS user authorization facilities provided with VM/ESA Version 2 Release 4.0. These enhancements allow an FTP user to access minidisks they own without the need for minidisk passwords to be defined or supplied during an FTP session. Thus, the link results achieved when FTP users access minidisk resources may noticeably differ from those seen using prior levels of TCP/IP for VM.

For example, if a user establishes a read-only link to a minidisk (through the use of an explicit “**ACCT read_password**” command), a subsequent PUT command that initiates a write request to that minidisk may now succeed *if* the login user ID owns the minidisk in question. By comparison, with a prior TCP/IP level, such a request would cause an FTP user to be prompted to supply a Read/Write (or Multiple Read) password through use of the **ACCT** subcommand in order to first gain write access to the minidisk.

The use of these new user authorization facilities will also allow users with LOGONBY authority for a given *base* virtual machine to exercise that same authority during an FTP session. This is accomplished through use of the CP Diagnose X'88' command by the FTP server, which allows access to *base* user ID resources without requiring the password for that *base* user ID to be supplied. This kind of access is achieved through use of a new “/BY/*byuser_id*” parameter of the FTP **USER**

subcommand. Additionally, the CP directory entry for the FTP server must include an `OPTION DIAG88` statement, to allow use of the `Diagnose X'88'` command.

- FTP virtual reader support has been added in Function Level 320, which allows an FTP client to use the virtual reader of a VM user ID as the current directory. For such users to issue `DELETE` and `DIR` or `LS` commands against a reader directory, the FTP server virtual machine must have class D privileges. To allow user to `PUT` files to a reader directory, the **RDR** parameter must be included with the FTP server startup command, `SRVRFTP`.

5.2.4.7 FTP Client

- The FTP client has been enhanced to make use of login information present in a `NETRC DATA` file. By default, when a connection is made to a foreign host, user ID and password information in the `NETRC DATA` file that is specific to that host will be used as part of an automatic FTP login process. Automatic FTP login can be suppressed using the new **NONETRC** option, or through use of the new **NETRC** subcommand.

5.2.4.8 Printing

- The `LPR` command can now route print files to RSCS for printing, freeing a user's virtual machine for other work. This may introduce the need for users to learn a limited set of RSCS commands in order to determine the status of their print files. Refer to the *TCP/IP Function Level 320 User's Guide* for more information.
- RSCS can be used instead of `LPSERVE` to provide enhanced printer daemon (LPD) capabilities. The operation and administration characteristics of RSCS are very different from `LPSERVE`. Refer to Chapter 14, "Printing with the RSCS Server" of *TCP/IP Function Level 320 Planning and Customization* for more information.

5.3 DASD Storage and User ID Requirements

Figure 11 on page 24 lists the user IDs and minidisks used to install and service the TCP/IP Feature for VM/ESA, and its corresponding features. Figure 12 on page 30 identifies additional minidisk requirements that are unique for the TCP/IP Source Feature.

Important Installation Notes:

1. The user IDs necessary for all TCP/IP features have been defined as part of the VM/ESA Version 2 Release 4.0 System DDR that is already installed. Likewise, all required minidisks have been defined as well. These resources have been listed in Figure 11 and Figure 12 so you are aware of the resources that have been allocated on your behalf.

For information about specific user ID directory entry requirements, consult the **5735FALT PLANINFO** file. This file is located on the `P735FALT 191` minidisk.

2. **P735FALT** is the default installation and service user ID, but this can be changed. If you choose to change the name of this installation user ID, you need to create a Product Parameter (PPF) override.

Note: If you change the TCP/IP Feature for VM/ESA installation user ID to a common or existing user ID (such as MAINT), minidisks may already be defined with addresses which are identical to the TCP/IP Feature minidisk defaults. If any minidisks are in use that have such matching addresses, you will need to create a PPF override to change the default TCP/IP Feature minidisk addresses so they are unique within your environment.

3. The P735FALT, TCPMAINT, and TCPIP user IDs and minidisks must be maintained. The remaining user IDs listed in Figure 11 are for servers and clients associated with optional TCP/IP Feature services. If you choose to not use a particular optional service, you don't need to maintain the user IDs and production minidisks associated with that service.
4. If you choose to use user IDs for TCP/IP server virtual machines that differ from the IBM-supplied user IDs shown in Figure 11, ensure you review the section titled "Implications of Assigning Different Server Virtual Machine Names" in Chapter 1 of *TCP/IP Function Level 320 Planning and Customization*.
5. In the tables that follow, if an SFS 4K block value and default directory name are not provided for a given minidisk, minidisk space **must** be used; such minidisks **cannot** be replaced with an SFS directory.
6. **All** P735FALT test build minidisks **must** be maintained. If the P735FALT minidisks for optional services are not maintained, problems will be encountered during installation and service.

For example, if you won't be using the NCS Location Broker daemons, you don't need to maintain the NCS, NCSGLBD and NCSLLBD 191 minidisks; likewise for the NCS 195 minidisk. However, you must still maintain the P735FALT 395 test build minidisk.

To determine which services (if any) you do not want to use, review the descriptions of services provided in *TCP/IP Function Level 320 Planning and Customization* (SC24-5847). The server-specific configuration chapters of this publication may also help you with your determination.

Also, if you omit resources that correspond to an optional service, you should not attempt to place the associated files into production, during step 6.2.4.1, "Copy TCP/IP Feature Run-time Files Into Production" on page 38. The 5735FALT CATALOG file should be modified so that files not used in your environment are bypassed during TCP2PROD command processing. See Appendix A, "The TCP2PROD Command" on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

7. Additional storage may need to be allocated for a given server 191 minidisk, depending on your environment. Some examples of disks that may need to be increased, and reasons for this, follow:

- SMTP 191 - to process a high volume of e-mail
- VMNFS 191 - to support a large number of clients
- DHCPD 191 - to support a large number of clients
- LPSERVE 191 - to allow processing of sizeable print jobs.

Minidisks may also need to be increased to accommodate the logging of trace activity.

8. The storage requirements for some minidisks may be revised over time, which may require existing minidisk sizes to be increased. For certain minidisks, these changes will be indicated in updated levels of this document by revision characters (usually a vertical bar — "I") in the left margin of Figure 11 and Figure 12.

For other minidisks, storage requirement changes will need to be assessed locally, for your specific environment. For example, the capacity of the **Delta** minidisk (**P735FALT 2D2**, by default), periodically may need to be increased, based on the specific preventive and corrective service applied to your system.

9. You can create multiple virtual machines, named NDBSRV01, NDBSRV02, etc., if you choose to run the Network Database. Each NDBSRV n virtual machine should be defined similar to NDBSRV01, which has been defined as part of the VM/ESA Version 2 Release 4.0 System DDR that is already installed.
10. You can create multiple virtual machines, named RXAGENT1, RXAGENT2, etc., if you choose to run the remote execution daemon (REXECD). Each RXAGENT n virtual machine should be defined similar to RXAGENT1, which has been defined as part of the VM/ESA Version 2 Release 4.0 System DDR that is already installed. However, note that the RXAGENT n virtual machines do not own any minidisks.
11. The TCP/IP Source and TCP/IP DES features use the same installation and service minidisks and SFS directories as the TCP/IP Feature for VM/ESA.
12. **Before** the TCP/IP Source Feature is installed, you **must** increase the storage allocated for the **Source** minidisk (**P735FALT 2B3**, by default) or its equivalent SFS directory to meet the requirements listed in Figure 12 on page 30.

For the TCP/IP DES Feature, the default storage allocated for this minidisk is sufficient to accommodate the source files supplied with this feature.

13. Source files are shipped in packed format. If you intend to unpack the source files after installation, ensure you define a sufficiently large Source minidisk or directory, as specified by the disk size for unpacked files in Figure 12 on page 30.
14. For information about copying client code to the Product Code minidisk, see Appendix G, “Copying TCP/IP Feature Client Code to the Y-Disk” on page 145.

5.3.1 DASD Requirements for the TCP/IP Feature for VM/ESA

Figure 11 (Page 1 of 6). DASD Storage Requirements for Target Minidisks - TCP/IP Feature

Minidisk owner (User ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
P735FALT	191	3390 3380 9345	17 20 20	24000	3000	P735FALT user ID 191 minidisk. VMSYS:P735FALT.
P735FALT	2B2	3390 3380 9345	62 74 74	88800	11100	Contains all the base code shipped with the TCP/IP Feature for VM/ESA. VMSYS:P735FALT.TCPIP.OBJECT
P735FALT	2B3	3390 3380 9345	2 2 2	2400	300	Source files disk. Only VMSES/E build list source files are included with the TCP/IP Feature. (3*) VMSYS:P735FALT.TCPIP.SOURCE
P735FALT	2C2	3390 3380 9345	16 19 19	22800	2850	Contains TCP/IP sample files. VMSYS:P735FALT.TCPIP.SAMPLE
P735FALT	2C4	3390 3380 9345	5 5 5	6000	750	Contains local modifications. VMSYS:P735FALT.TCPIP.LOCAL
P735FALT	2D2	3390 3380 9345	50 60 60	72000	9000	Contains serviced files. VMSYS:P735FALT.TCPIP.DELTA
P735FALT	2A6	3390 3380 9345	5 5 5	6000	750	Contains AUX files and software inventory tables that represent the test service level of the TCP/IP Feature. VMSYS:P735FALT.TCPIP.APPLYALT

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. FBA minidisk sizes are shown in 512-byte blocks; these minidisks should be CMS formatted at 1K size.
2. For installation to SFS directories, a total of **28500** 4K blocks are required.
3. Additional space **must** be defined or allocated for the Source files minidisk (2B3) or directory if the TCP/IP Source Feature is installed. See Figure 12 on page 30 for more information about additional requirements for this resource.
4. Additional storage may need to be allocated for some minidisks, depending on your environment. For more information, see the accompanying notes on page 21.
5. See Appendix G, "Copying TCP/IP Feature Client Code to the Y-Disk" on page 145 for information about copying client code to the Product Code minidisk.

Figure 11 (Page 2 of 6). DASD Storage Requirements for Target Minidisks - TCP/IP Feature

Minidisk owner (User ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
P735FALT	2A2	3390 3380 9345	5 5 5	6000	750	Contains AUX files and software inventory tables that represent the service level of the TCP/IP Feature that is currently in production. VMSYS:P735FALT.TCPIP.APPLYPROD
P735FALT	491	3390 3380 9345	29 34 34	40800	_____	Test build disk for server code. This code will be copied to a production disk (TCPMAINT 591), so that disk will also require this amount of free space.
P735FALT	492	3390 3380 9345	56 67 67	80400	_____	Test build disk for client code. This code will be copied to a production disk (TCPMAINT 592), so that disk will also require this amount of free space.
P735FALT	395	3390 3380 9345	2 2 2	2400	_____	Test build disk for NCS code. This code will be copied to a production disk (NCS 195), so that disk will also require this amount of free space.
TCPMAINT	191	3390 3380 9345	7 8 8	9600	_____	TCPMAINT user ID 191 minidisk.
TCPMAINT	198	3390 3380 9345	9 10 10	12000	_____	Contains configuration files for clients and servers.
TCPMAINT	591	3390 3380 9345	29 34 34	40800	_____	Production build disk for server code.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. FBA minidisk sizes are shown in 512-byte blocks; these minidisks should be CMS formatted at 1K size.
2. For installation to SFS directories, a total of **28500** 4K blocks are required.
3. Additional space **must** be defined or allocated for the Source files minidisk (2B3) or directory if the TCP/IP Source Feature is installed. See Figure 12 on page 30 for more information about additional requirements for this resource.
4. Additional storage may need to be allocated for some minidisks, depending on your environment. For more information, see the accompanying notes on page 21.
5. See Appendix G, "Copying TCP/IP Feature Client Code to the Y-Disk" on page 145 for information about copying client code to the Product Code minidisk.

Figure 11 (Page 3 of 6). DASD Storage Requirements for Target Minidisks - TCP/IP Feature

Minidisk owner (User ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
TCPMAINT	592	3390 3380 9345	56 67 67	80400	_____	Production build disk for client code. (4*)
ADMSERV	191	3390 3380 9345	5 5 5	6000	_____	ADMSERV user ID 191 minidisk.
BOOTPD	191	3390 3380 9345	2 2 2	2400	_____	BOOTPD user ID 191 minidisk.
DHCPD	191	3390 3380 9345	2 2 2	2400	_____	DHCPD user ID 191 minidisk.
FTPSERVE	191	3390 3380 9345	9 10 10	12000	_____	FTPSERVE user ID 191 minidisk.
LPSERVE	191	3390 3380 9345	2 2 2	2400	_____	LPSERVE user ID 191 minidisk.
NAMESRV	191	3390 3380 9345	2 2 2	2400	_____	NAMESRV user ID 191 minidisk.
NCS	191	3390 3380 9345	2 2 2	2400	_____	NCS user ID 191 minidisk.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. FBA minidisk sizes are shown in 512-byte blocks; these minidisks should be CMS formatted at 1K size.
2. For installation to SFS directories, a total of **28500** 4K blocks are required.
3. Additional space **must** be defined or allocated for the Source files minidisk (2B3) or directory if the TCP/IP Source Feature is installed. See Figure 12 on page 30 for more information about additional requirements for this resource.
4. Additional storage may need to be allocated for some minidisks, depending on your environment. For more information, see the accompanying notes on page 21.
5. See Appendix G, "Copying TCP/IP Feature Client Code to the Y-Disk" on page 145 for information about copying client code to the Product Code minidisk.

Figure 11 (Page 4 of 6). DASD Storage Requirements for Target Minidisks - TCP/IP Feature

Minidisk owner (User ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
NCS	195	3390 3380 9345	2 2 2	2400	_____	Production build disk for NCS administration code.
NCSGLBD	191	3390 3380 9345	2 2 2	2400	_____	NCSGLBD user ID 191 minidisk.
NCSLLBD	191	3390 3380 9345	2 2 2	2400	_____	NCSLLBD user ID 191 minidisk.
NDBPMGR	191	3390 3380 9345	1 1 1	1200	_____	NDBPMGR user ID 191 minidisk.
NDBSRV01	191	3390 3380 9345	1 1 1	1200	_____	NDBSRV01 user ID 191 minidisk.
PORTMAP	191	3390 3380 9345	2 2 2	2400	_____	PORTMAP user ID 191 minidisk.
REXECD	191	3390 3380 9345	2 2 2	2400	_____	REXECD user ID 191 minidisk.
ROUTED	191	3390 3380 9345	2 2 2	2400	_____	ROUTED user ID 191 minidisk.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. FBA minidisk sizes are shown in 512-byte blocks; these minidisks should be CMS formatted at 1K size.
2. For installation to SFS directories, a total of **28500** 4K blocks are required.
3. Additional space **must** be defined or allocated for the Source files minidisk (2B3) or directory if the TCP/IP Source Feature is installed. See Figure 12 on page 30 for more information about additional requirements for this resource.
4. Additional storage may need to be allocated for some minidisks, depending on your environment. For more information, see the accompanying notes on page 21.
5. See Appendix G, "Copying TCP/IP Feature Client Code to the Y-Disk" on page 145 for information about copying client code to the Product Code minidisk.

Figure 11 (Page 5 of 6). DASD Storage Requirements for Target Minidisks - TCP/IP Feature

Minidisk owner (User ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
RXAGENT1	_____	3390 3380 9345	— — —	_____	_____	REXEC Agent - no 191 minidisk is required; the REXECD 191 minidisk is utilized.
SMTP	191	3390 3380 9345	25 30 30	36000	_____	SMTP user ID 191 minidisk.
SNALNKA	191	3390 3380 9345	3 3 3	3600	_____	SNALNKA user ID 191 minidisk.
SNMPD	191	3390 3380 9345	2 2 2	2400	_____	SNMPD user ID 191 minidisk.
SNMPQE	191	3390 3380 9345	2 2 2	2400	_____	SNMPQE user ID 191 minidisk.
TCPIP	191	3390 3380 9345	5 5 5	6000	_____	TCPIP user ID 191 minidisk.
TFTPD	191	3390 3380 9345	2 2 2	2400	_____	TFTPD user ID 191 minidisk.
UFTD	191	3390 3380 9345	2 2 2	2400	_____	UFTD user ID 191 minidisk.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. FBA minidisk sizes are shown in 512-byte blocks; these minidisks should be CMS formatted at 1K size.
2. For installation to SFS directories, a total of **28500** 4K blocks are required.
3. Additional space **must** be defined or allocated for the Source files minidisk (2B3) or directory if the TCP/IP Source Feature is installed. See Figure 12 on page 30 for more information about additional requirements for this resource.
4. Additional storage may need to be allocated for some minidisks, depending on your environment. For more information, see the accompanying notes on page 21.
5. See Appendix G, "Copying TCP/IP Feature Client Code to the Y-Disk" on page 145 for information about copying client code to the Product Code minidisk.

Figure 11 (Page 6 of 6). DASD Storage Requirements for Target Minidisks - TCP/IP Feature

Minidisk owner (User ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
VMKERB	191	3390 3380 9345	6 7 7	8400	_____	VMKERB user ID 191 minidisk.
VMNFS	191	3390 3380 9345	9 10 10	12000	_____	VMNFS user ID 191 minidisk.
X25IPI	191	3390 3380 9345	2 2 2	2400	_____	X25IPI user ID 191 minidisk.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. FBA minidisk sizes are shown in 512-byte blocks; these minidisks should be CMS formatted at 1K size.
2. For installation to SFS directories, a total of **28500** 4K blocks are required.
3. Additional space **must** be defined or allocated for the Source files minidisk (2B3) or directory if the TCP/IP Source Feature is installed. See Figure 12 on page 30 for more information about additional requirements for this resource.
4. Additional storage may need to be allocated for some minidisks, depending on your environment. For more information, see the accompanying notes on page 21.
5. See Appendix G, "Copying TCP/IP Feature Client Code to the Y-Disk" on page 145 for information about copying client code to the Product Code minidisk.

5.3.2 DASD Requirements for the TCP/IP Source Feature for VM/ESA

<i>Figure 12. DASD Storage Requirements for Target Minidisks - TCP/IP Source Feature for VM/ESA</i>						
Minidisk owner (User ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
P735FALT	2B3	3390 3380 9345	37 44 44	52800	6950	Source files disk - PACKED format VMSYS:P735FALT.TCPIP.SOURCE
P735FALT	2B3	3390 3380 9345	75 89 89	102000	14260	Source files disk - UNPACKED format VMSYS:P735FALT.TCPIP.SOURCE

Note: Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. FBA minidisk sizes are shown in 512-byte blocks; these minidisks should be CMS formatted at 1K size.

6950 4K blocks are needed for SFS install of the **packed** source files. **14260** 4K blocks are needed for SFS install if source files will be **unpacked**.

5.3.3 DASD Requirements for the TCP/IP DES Feature for VM/ESA

There are no specific minidisk or SFS storage requirements for the TCP/IP DES Feature. The resources defined for the TCP/IP Feature are sufficient to allow for installation of the TCP/IP DES Feature.

6.0 Installation Instructions

This section describes the installation methods and the step-by-step procedures to complete the installation and activation of the TCP/IP Feature for VM/ESA, as well as those necessary to install or activate the TCP/IP Source, TCP/IP NFS and TCP/IP DES features.

Authorization and Ordering Information

- If you **have not ordered** the **TCP/IP Feature for VM/ESA**, installation of the TCP/IP Feature, and any corresponding TCP/IP features, is complete; the additional installation steps provided in this document should not be used.
- If you **are planning to order** the TCP/IP Feature for VM/ESA, you should contact your IBM marketing representative and order the TCP/IP Feature as described in 2.1, "Obtaining Authorization for the TCP/IP or TCP/IP NFS Feature" on page 4. After you have ordered the product, you will need to complete the installation process, as described in the sections that follow.
- If you **have already ordered** the TCP/IP Feature for VM/ESA, most of the necessary VMSES/E installation steps have been performed. However, you need to continue with the instructions provided in 6.2, "Installing the TCP/IP Feature for VM/ESA" on page 32 to complete the installation of the TCP/IP Feature.

The procedures that follow are in two-column format. The steps to be performed are in bold large numbers. Commands for these steps are on the left hand side of the page numbered using bold numerals. Additional information for a command may exist to the right of the command. For more information about the two-column format see "Understanding Dialogs with the System" in the *VM/ESA Installation Guide*.

Each step of the installation instructions must be followed. Do not skip any step unless directed otherwise.

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS directories to install the TCP/IP Feature for VM/ESA, adapt these instructions as needed for your environment.

Note!

The sample console output presented throughout these instructions was produced on a VM/ESA Version 2 Release 4.0 system and assumes that you are installing to minidisks using the default PPF and component names.

6.1 TCP/IP Feature Installation and Activation Process Overview

The following is a brief description of the steps required to install the TCP/IP Feature for VM/ESA and its features using VMSES/E.

- Plan Your Installation

While resources have been allocated for TCP/IP Feature as part of the VM/ESA Version 2 Release 4.0 System DDR that is already installed, this default environment should be reviewed and, if necessary, modified for your installation.

- Review the changes cited in 5.2.4, “Migration Considerations” on page 18, so that you are aware of changes that may affect your customization of TCP/IP Function Level 320.

- Activate (enable) the TCP/IP Feature.

- Place the TCP/IP Feature or Other TCP/IP Feature Files into Production

The TCP/IP Feature files are copied from the test BUILD disks to the production BUILD disks.

- Configure the TCP/IP Feature

Information is provided to assist in customizing configuration files needed to run the TCP/IP Feature.

For a complete description of all VMSES/E installation options refer to:

- *VMSES/E Introduction and Reference* (GC24-5837)

6.2 Installing the TCP/IP Feature for VM/ESA

Quick Index for Installation Instructions

Select the installation instructions you should use, based on the TCP/IP feature you will be working with:

- TCP/IP Feature Installation — Begin with 6.2.1, “Review the TCP/IP Feature for VM/ESA Default Installation Environment” on page 33
- TCP/IP NFS Feature Enablement — Begin with 6.3, “Enabling the TCP/IP NFS Feature for VM/ESA” on page 47
- TCP/IP Source Feature Installation — Begin with 6.4, “Installing the TCP/IP Source Feature for VM/ESA” on page 49
- TCP/IP DES Feature Installation — Begin with 6.5, “Installing the TCP/IP DES Feature for VM/ESA” on page 59

6.2.1 Review the TCP/IP Feature for VM/ESA Default Installation Environment

Because the TCP/IP Feature has been installed as part of the VM/ESA Version 2 Release 4.0 system DDR, several installation steps have already been performed on your behalf. Among these are the:

- addition of TCP/IP-specific user ID entries and PROFILES to the VM/ESA Version 2 Release 4.0 system directory
- creation of a simplified PROFILE EXEC for the P735FALT user ID
- allocation of TCP/IP-required minidisks
- loading of TCP/IP Feature product files to minidisks, using VMSES/E commands
- installation of the TCP/IP Feature initial RSU (if one exists).

6.2.1.1 TCP/IP Feature Directory PROFILES and User IDs

For reference, the two PROFILE directory entries that have been added to the VM/ESA Version 2 Release 4.0 system directory, PROFILE TCPCMSU and PROFILE TCPGCSU, are shown in Figure 13. Each directory entry supplied for a TCP/IP Feature for VM/ESA service virtual machine includes one of these profiles.

Figure 13. TCP/IP Feature for VM/ESA System Directory Profiles

<pre>PROFILE TCPCMSU IPL CMS MACHINE XA SPOOL 00C 2540 READER * SPOOL 00D 2540 PUNCH A SPOOL 00E 1403 A CONSOLE 009 3215 T LINK MAINT 190 190 RR LINK MAINT 19D 19D RR LINK MAINT 19E 19E RR * LINK MAINT 0402 0402 RR * LINK MAINT 0401 0401 RR * LINK MAINT 0405 0405 RR</pre>	<pre>PROFILE TCPGCSU IPL GCSXA PARM AUTOLOG MACHINE XA NAMESAVE GCS SPOOL 00C 2540 READER * SPOOL 00D 2540 PUNCH A SPOOL 00E 1403 A CONSOLE 009 3215 T LINK MAINT 190 190 RR LINK MAINT 19D 19D RR LINK MAINT 19E 19E RR * LINK MAINT 0402 0402 RR * LINK MAINT 0401 0401 RR * LINK MAINT 0405 0405 RR</pre>
--	--

Note: The NAMESAVE GCS statement can be removed from PROFILE TCPGCSU if the GCS saved segment is not restricted.

The user IDs that have been defined for the TCP/IP Feature for VM/ESA are listed in Figure 14 on page 34.

Note: Following installation of the VM/ESA Version 2 Release 4.0 System DDR, the login password for a given TCP/IP user ID is identical to the user ID itself. If you have not already done so, change these passwords to valid passwords, in accordance with your security guidelines.

Additional User ID Notes:

1. For information about specific user ID directory entry requirements, consult the **5735FALT PLANINFO** file. This file is located on the P735FALT 191 minidisk.
2. The directory entry for the TCPIP virtual machine includes the statement: `SHARE RELATIVE 3000`
 For most installations, the relative CPU share allocation of 3000 should be suitable. However, you are free to change this value to conform to local guidelines established for defining server and guest virtual machine share settings.
3. If you create additional RXAGENT n machines, duplicate the RXAGENT1 directory entry for each server you add.
4. If you create additional NDBSRV nn machines, duplicate the NDBSRV01 directory entry for each server you add, and add a link for each 191 disk to the P735FALT directory entry.
5. The NCS 195 disk and its test build disk, P735FALT 395, contain administrator code. Access to these disks should be restricted.
 Also, NCS end-users need to have Read access to the NCS 191 disk.
6. If you choose to not use a given server, remove the link to that server's minidisk(s) from the P735FALT directory entry.

Formatting Reminder

Any additional minidisks you create must be formatted before you continue installation of the TCP/IP Feature for VM/ESA.

Figure 14 (Page 1 of 2). Default User IDs - TCP/IP Feature for VM/ESA

TCP/IP User ID	Associated TCP/IP Function
P735FALT	Maintains the TCP/IP system.
TCPMAINT	TCP/IP system ownership.
ADMSERV	Runs the Kerberos database remote administration server.
BOOTPD	Responds to client requests for boot information using data defined in a BOOTP machine file.
DHCPD	Responds to client requests for boot information using data defined in a DHCPD machine file.
FTPSERVE	Implements the File Transfer Protocol (FTP) daemon, which controls access to files on the local host.

Notes:

1. Additional changes may need to be made for some user IDs, depending on your environment. For more information, see the accompanying notes on page 34.

Figure 14 (Page 2 of 2). Default User IDs - TCP/IP Feature for VM/ESA

TCP/IP User ID	Associated TCP/IP Function
LPSERVE	Implements the Line Printer Daemon (LPD), which handles client requests to print a file.
NAMESRV	Implements the Domain Name System (DNS) server.
NCS (1*)	Supports Network Computing System (NCS) administration.
NCSGLBD	Runs the NCS Global Location Broker daemon (glbd).
NCSLLBD	Runs the NCS Local Location Broker daemon (llbd).
NDBPMGR	Provides Network Database (NDB) Port Manager support, and is used in conjunction with the NDBSRV01 server.
NDBSRV01 (1*)	Provides Network Database (NDB) System support, in conjunction with the NDB Port Manager (NDBPMGR) server.
PORTMAP	Runs the Portmapper function for RPC systems that support the Network File System protocol.
REXECD	Provides remote execution services for TCP/IP hosts that support the REXEC client.
ROUTED	Implements the Routed server, which manages IP route table entries.
RXAGENT1 (1*)	Agent virtual machine used by REXECD to process anonymous rexec client requests.
SMTP	Implements the Simple Mail Transfer Protocol (SMTP) server, which provides TCP/IP electronic mail support.
SNALNKA	Provides SNA LU 0 connections between multiple hosts.
SNMPD	Virtual machine for the SNMP Agent.
SNMPQE	Virtual machine for the SNMP Query Engine.
TCPIP (1*)	Primary virtual machine that provides TCP/IP and Telnet services.
TFTPD	Transfers files between the Byte File System (BFS) and TFTP clients.
UFTD	Implements the Unsolicited File Transfer (UFT) server.
VMKERB	Runs the Kerberos authentication server.
VMNFS	Implements the Network File System (NFS) server.
X25IPI	Provides an interface which allows the TCPIP virtual machine to communicate with hosts that use the X.25 protocol.
Notes:	
1. Additional changes may need to be made for some user IDs, depending on your environment. For more information, see the accompanying notes on page 34.	

6.2.2 (Optional) Moving the TCP/IP Feature to SFS Directories

By default, the TCP/IP Feature for VM/ESA is installed to minidisks, as part of the VM/ESA Version 2 Release 4.0 System DDR. However, you can move the TCP/IP Feature service minidisks to Shared File System (SFS) directories. See Appendix F, "Moving the TCP/IP Feature to SFS Directories" on page 140 for instructions on how this can be done.

6.2.3 Enable the TCP/IP Feature

The TCP/IP Feature for VM/ESA must be enabled prior to use. To enable the TCP/IP Feature, use the steps that follow.

- 1** Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2** Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 3** If necessary, establish the appropriate access to the VMSES/E minidisks.

- a** Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

- b** Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```

4 Set the TCP/IP Feature for VM/ESA to the enabled state.

vmfins enable ppf 5735falt {tcpip|tcpipsfs}

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command will:

- set the TCP/IP Feature as ENABLED in VMSES/E and CP
- create a 5735FALT PRODSYS file on the A-disk, which contains a CP system configuration PRODUCT statement with a state of: ENABLED

5 In order to **retain the ENABLED state** for the TCP/IP Feature, **update the CP system configuration file** with the information in the 5735FALT PRODSYS file.

The 5735FALT PRODSYS file was created by VMFINS in the previous step. You need to update the CP system configuration file so that the next time you IPL your system, the TCP/IP Feature will be in the ENABLED state. If you are not authorized to update the CP system configuration file, contact your CP system administrator.

The CP system configuration file resides on the CP “parm” disk (the MAINT CF1 or CF2 minidisk); by default, this file is named: SYSTEM CONFIG. The necessary updates need to be made to the “PRODUCT ENABLE/DISABLE INFORMATION” section of this file. You will need to replace the current DISABLED entry for PRODID 5735FALT (TCP/IP Feature for VM/ESA) with the entry from the 5735FALT PRODSYS file (created by VMFINS in the previous step). If necessary, refer to the *VM/ESA Planning and Administration* manual for more information about the CP system configuration file.

6.2.4 Place the TCP/IP Feature for VM/ESA Into Production

Note!

If you have not determined which TCP/IP Feature services will be used within your environment, you should do so at this time, before you place TCP/IP Feature files into production using the following procedure.

To determine which services (if any) you do not want to use, review the descriptions of services provided in *TCP/IP Function Level 320 Planning and Customization* (SC24-5847). The server-specific configuration chapters of this publication may also help you with your determination.

6.2.4.1 Copy TCP/IP Feature Run-time Files Into Production

- 1 Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

3 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

b Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```

4 Access the P735FALT 491 minidisk.

access 491 j

The 491 minidisk is where the TCP2PROD EXEC resides.

5 Modify the 5735FALT CATALOG file so that the appropriate files will be placed into production for your environment.

The 5735FALT CATALOG file is used by the TCP2PROD command to copy files to TCP/IP Feature minidisks. See Appendix A, "The TCP2PROD Command" on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

Notes:

- a. You should modify both the product run-time file section (TCPRUN) and the customizable sample file section (TCPCONFIG) of the 5735FALT CATALOG at the same time. For reference purposes, files that can be processed using the TCPRUN section of this file are listed in Figure 15 on page 43; those processed using the TCPCONFIG section are listed in Figure 16 on page 44.
- b. To ensure you are notified of any service-related changes to the 5735FALT CATALOG file, make changes to this file using a VMSES/E local modification. See Appendix B, "Modifying TCP/IP Feature CATALOG Files" on page 121 for more information about how to change the 5735FALT CATALOG file in this manner.
- c. When making changes, ensure that only files associated with the servers you have installed are processed.

6 (Optional) If necessary, establish a write link to any TCP/IP Feature production or server minidisks which are not yet linked in this mode.

LINK statements for the various TCP/IP Feature minidisks are present in the P735FALT directory entry that was defined as part of the VM/ESA Version 2 Release 4.0 System DDR that is already installed.

If you have changed the default installation user ID or use different minidisk addresses in your environment, you may need to manually link the necessary TCP/IP production and server minidisks. See Figure 15 on page 43 and Figure 16 on page 44 for the link addresses you should use. If you have a PPF override that has changed any of these addresses, use your values.

link *tcpipid vdev1 vdev2 mr*

Note: If another user already has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode, after which you need to re-issue the above LINK and ACCESS commands. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 7 Copy TCP/IP Feature files into production using the TCP2PROD command. The files copied via the following command are those identified in the TCPRUN section of the 5735FALT CATALOG file.

Verifying Your Environment

When you perform this step, you should first issue the TCP2PROD command with the **TEST** option, to verify that all resources can be accessed and that the appropriate files will be processed. See Appendix A, "The TCP2PROD Command" on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

With the **TEST** option in effect, **no files are copied into production**. Resolve any reported problems, then invoke TCP2PROD without the TEST option, as illustrated below.

tcp2prod 5735falt {tcpip | tcpipsfs} 5735falt tcprun (setup

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

6.2.4.2 Copy TCP/IP Feature Configuration Files Into Production

Use the TCP2PROD command, as described below, to place the IBM-supplied sample configured files into production.

Note: For step 2 below, it's assumed that the TCPCONFIG section of the 5735FALT CATALOG has been suitably modified (as described in step 5 of 6.2.4.1, "Copy TCP/IP Feature Run-time Files Into Production" on page 38). If this is not

the case, you should make any necessary changes to the TCPCONFIG section of the 5735FALT CATALOG file before you continue with the following steps.

- 1** If necessary, establish the appropriate environment, as described by steps 1 through 4, in 6.2.4.1, “Copy TCP/IP Feature Run-time Files Into Production” on page 38.
- 2** Copy TCP/IP Feature configuration files into production using the TCP2PROD command. For reference purposes, files that can be processed using the TCPCONFIG section are listed in Figure 16 on page 44.

Verifying Your Environment

When you perform this step, you should first issue the TCP2PROD command with the **TEST** option, to verify that all resources can be accessed and that the appropriate files will be processed. See Appendix A, “The TCP2PROD Command” on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

With the **TEST** option in effect, **no files are copied into production**. Resolve any reported problems, then invoke TCP2PROD without the TEST option, as illustrated below.

tcp2prod 5735falt {tcpip | tcpipsfs} 5735falt tcpconfig (setup forcecopy

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

The **FORCECOPY** option causes **all** existing configuration files to be replaced, so that any sample configuration files included as part of the initial RSU can be customized.

6.2.4.3 Configure the TCP/IP Feature for VM/ESA for Your Installation

TCP/IP Feature for VM/ESA has been installed with *sample* copies of the configuration files used by the various TCP/IP servers and clients in your environment. Before any TCP/IP services can be used, these configuration files need to be customized for your environment.

See *TCP/IP Function Level 320 Planning and Customization (SC24-5847)* for detailed information about the content and use of these files, and how to configure the various TCP/IP Feature servers you plan to use.

6.2.4.4 Initialize TCP/IP Services

After you have completed configuring the TCP/IP Feature for your environment, you need to initialize the appropriate TCP/IP servers.

For information on starting TCP/IP servers, see “Starting and Stopping TCP/IP Services” in Chapter 6 of *TCP/IP Function Level 320 Planning and Customization*.

6.2.4.5 (Optional) Copy TCP/IP Client Code to the VM/ESA Product Code Disk

After the TCP/IP Feature has been configured for your environment, you may want to consider copying the TCP/IP client code to the VM/ESA Product Code minidisk. See Appendix G, “Copying TCP/IP Feature Client Code to the Y-Disk” on page 145 for additional information and instructions concerning this process.

6.2.4.6 TCP/IP Feature for VM/ESA Product and Sample Configuration Files

Figure 15 on page 43 lists the name and location of TCP/IP Feature product run-time files provided by IBM, and the names and location of these files after they've been placed into production. The servers that use a given file are identified as well.

Figure 15 (Page 1 of 2). Files to Copy into Production - TCP/IP Feature for VM/ESA

P735FALT Test Disk	P735FALT Link Address	Original File Name/Type	Production File Name/Type	Server Minidisk
491	591	— All Files —	(no change)	_____
492	592	— All Files —	(no change)	_____
395	26D	— All Files —	(no change)	NCS 195
491	261	TCPROFIL EXEC	PROFILE EXEC	TCPIP 191
491	262	TCPROFIL EXEC	PROFILE EXEC	FTPSERVE 191
491	263	TCPROFIL EXEC	PROFILE EXEC	SMTP 191
491	264	TCPROFIL EXEC	PROFILE EXEC	NAMESRV 191
491	265	TCPROFIL EXEC	PROFILE EXEC	REXECD 191
491	266	TCPROFIL GCS (1*)	PROFILE GCS	X25IPI 191
491	267	TCPROFIL EXEC	PROFILE EXEC	PORTMAP 191
491	268	TCPROFIL EXEC	PROFILE EXEC	NDBPMGR 191
491	269	TCPROFIL EXEC (2*)	PROFILE EXEC	NDBSRV01 191
491	26A	TCPROFIL EXEC	PROFILE EXEC	SNMPQE 191
491	26B	TCPROFIL EXEC	PROFILE EXEC	SNMPD 191
491	26C	NCSPRO EXEC (1*)	PROFILE EXEC	NCS 191
492	26C	NCS SOCK1 H	SOCKET H	NCS 191
492	26C	NCSRPC H	RPC H	NCS 191
492	26C	NCSUTIL C	UTIL C	NCS 191
491	26E	TCPROFIL EXEC	PROFILE EXEC	NCSLLBD 191
491	26F	TCPROFIL EXEC	PROFILE EXEC	NCSGLBD 191
491	270	TCPROFIL EXEC	PROFILE EXEC	ROUTED 191
491	271	TCPROFIL EXEC	PROFILE EXEC	LP SERVE 191
491	272	TCPROFIL GCS (1*)	PROFILE GCS	SNALNKA 191
Notes:				
1. The NCSPRO EXEC and the TCPROFIL GCS profiles are not interchangeable with the TCPROFIL EXEC used for other TCP/IP servers.				
2. TCPROFIL EXEC should be copied to the 191 disk of any additional NDBSRV nn servers that are installed.				

<i>Figure 15 (Page 2 of 2). Files to Copy into Production - TCP/IP Feature for VM/ESA</i>				
P735FALT Test Disk	P735FALT Link Address	Original File Name/Type	Production File Name/Type	Server Minidisk
491	273	TCPROFIL EXEC	PROFILE EXEC	VMNFS 191
491	274	TCPROFIL EXEC	PROFILE EXEC	VMKERB 191
491	275	TCPROFIL EXEC	PROFILE EXEC	ADMSERV 191
491	276	TCPROFIL EXEC	PROFILE EXEC	BOOTPD 191
491	277	TCPROFIL EXEC	PROFILE EXEC	TFTPD 191
491	278	TCPROFIL EXEC	PROFILE EXEC	DHCPD 191
491	279	TCPROFIL EXEC	PROFILE EXEC	UFTD 191
Notes:				
<ol style="list-style-type: none"> 1. The NCSPRO EXEC and the TCPROFIL GCS profiles are not interchangeable with the TCPROFIL EXEC used for other TCP/IP servers. 2. TCPROFIL EXEC should be copied to the 191 disk of any additional NDBSRVnn servers that are installed. 				

Figure 16 lists the name and location of the TCP/IP Feature sample files as provided by IBM, and the default names and location of these files after they've been customized. The servers that use a given file are identified as well.

<i>Figure 16 (Page 1 of 3). Files to Customize - TCP/IP Feature for VM/ESA</i>				
Sample Disk	Configured Disk	Sample File Name/Type	Configured File Name/Type	Server
591	198	PROFILE STCIPIP	PROFILE TCPIPIP	TCPIPIP
592	198	HOSTS SLOCAL	HOSTS LOCAL	TCPIPIP
591	198	SCEXIT SEXEC	SCEXIT EXEC	TCPIPIP
Notes:				
<ol style="list-style-type: none"> 1. TCPIPIP DATA is used by all TCP/IP servers and client programs. 2. FTP DATA is used by both FTP clients and the FTP server (FTPSERVE). 3. If you are using RACF®, the FTPPERM and NFSPERM EXECs must be accessible to end users. If these files need to be modified, changes should be made via a VMSES/E local modification. 4. KRB CONF is used by client applications that utilize Kerberos authentication servers. 5. This file is not listed in the 5735FALT CATALOG file. Therefore, it must be manually copied to the indicated "Configured Disk" before it is customized. 				

Figure 16 (Page 2 of 3). Files to Customize - TCP/IP Feature for VM/ESA

Sample Disk	Configured Disk	Sample File Name/Type	Configured File Name/Type	Server
591	198	SCEXIT ASSEMBLE	(no change)	TCPIP
591	198	PMEXIT SEXEC	PMEXIT EXEC	TCPIP
591	198	PMEXIT ASSEMBLE	(no change)	TCPIP
591	198	CHKIPADR SEXEC	CHKIPADR EXEC	FTPSERVE
591	198	ROUTED SCONFIG	ROUTED CONFIG	ROUTED
591	198	SMTP SCONFIG	SMTP CONFIG	SMTP
591	198	SMTPCMDX SEXEC	SMTPCMDX EXEC	SMTP
591	198	SMTPCMDX ASSEMBLE	(no change)	SMTP
591	198	SMTPVERX SEXEC	SMTPVERX EXEC	SMTP
591	198	SMTPVERX ASSEMBLE	(no change)	SMTP
591	198	SMTPFWDX SEXEC	SMTPFWD EXEC	SMTP
591	198	SMTPFWDX ASSEMBLE	(no change)	SMTP
591	198	SECURITY MEMO	(no change)	SMTP
591	198	SMTP SECTABLE	(no change)	SMTP
591	198	NSMAIN SDATA	NSMAIN DATA	NAMESRV
591	198	VALIDUSR SEXEC	VALIDUSR EXEC	NAMESRV
591	198	X25IPI SCONFIG	X25IPI CONFIG	X25IPI
591	198	X25IPI GCS	(no change)	X25IPI
591	198	MIB_DESC DATA	(no change)	SNMPQE
591	198	LPD SCONFIG	LPD CONFIG	LPSERVE
591	198	RSCSTCP SCONFIG	RSCSTCP CONFIG	RSCS
591	198	RSCSLPD SCONFIG	RSCSLPD CONFIG	RSCS LPD
591	198	RSCSLPR SCONFIG	RSCSLPR CONFIG	RSCS LPD
591	198	RSCSLPRP SCONFIG	RSCSLPRP CONFIG	RSCS LPD
591	198	SNALNKA GCS	(no change)	SNALNKA

Notes:

1. TCPIP DATA is used by **all** TCP/IP servers and client programs.
2. FTP DATA is used by both FTP clients and the FTP server (FTPSERVE).
3. If you are using RACF®, the FTPPERM and NFSPERM EXECs must be accessible to end users. If these files need to be modified, changes should be made via a VMSES/E local modification.
4. KRB CONF is used by client applications that utilize Kerberos authentication servers.
5. This file is not listed in the 5735FALT CATALOG file. Therefore, it must be manually copied to the indicated "Configured Disk" before it is customized.

Figure 16 (Page 3 of 3). Files to Customize - TCP/IP Feature for VM/ESA

Sample Disk	Configured Disk	Sample File Name/Type	Configured File Name/Type	Server
591	198	VMNFS SCONFIG	VMNFS CONFIG	VMNFS
591	198	VMNFSCMS SEXEC	VMNFSCMS EXEC	VMNFS
591	198	VMNFSMON SEXEC	VMNFSMON EXEC	VMNFS
591	198	VMNFSSMG SEXEC	VMNFSSMG EXEC (5*)	VMNFS
591	198	NFSFHCIP ASSEMBLE	(no change)	VMNFS
591	198	NFSBADPW C	(no change)	VMNFS
591	198	NFSSMSG C	(no change)	VMNFS
591	2B2	ADM@ACL ADD	(no change)	ADMSERV
591	2B2	ADM@ACL GET	(no change)	ADMSERV
591	2B2	ADM@ACL MOD	(no change)	ADMSERV
591	198	BOOTPTAB SAMPLE	ETC BOOTPTAB	BOOTPD
591	198	UFTD SCONFIG	UFTD CONFIG	UFTD
591	198	UFTCMDX SEXEC	UFTCMDX EXEC	UFTD
591	198	UFTNSLKX SEXEC	UFTNSLKX EXEC	UFTD
591	198	RSCSUFT SCONFIG	RSCSUFT CONFIG	RSCS UFTD
592	592	TCPIP SDATA	TCPIP DATA (1*)	All Users
592	592	FTP SDATA	FTP DATA (2*)	FTP Users
592	592	FTPPERM EXEC (3*)	(no change)	FTP Users
592	592	NFSPERM EXEC (3*)	(no change)	NFS Users
2B2	592	KRB CONF (4*)	(no change)	Clients

Notes:

1. TCPIP DATA is used by **all** TCP/IP servers and client programs.
2. FTP DATA is used by both FTP clients and the FTP server (FTPSERVE).
3. If you are using RACF®, the FTPPERM and NFSPERM EXECs must be accessible to end users. If these files need to be modified, changes should be made via a VMSES/E local modification.
4. KRB CONF is used by client applications that utilize Kerberos authentication servers.
5. This file is not listed in the 5735FALT CATALOG file. Therefore, it must be manually copied to the indicated "Configured Disk" before it is customized.

TCP/IP Feature for VM/ESA is now installed and built on your system.

6.3 Enabling the TCP/IP NFS Feature for VM/ESA

Authorization and Ordering Information

- If you **have not ordered** the **TCP/IP NFS Feature for VM/ESA**, installation of the TCP/IP NFS Feature is complete; the additional installation steps provided in this section should not be used.
- If you **are planning to order** the TCP/IP NFS Feature for VM/ESA, you should contact your IBM marketing representative and order the TCP/IP NFS Feature as described in 2.1, “Obtaining Authorization for the TCP/IP or TCP/IP NFS Feature” on page 4. After you have ordered the product, you then need to complete the steps provided in this section.
- If you **have already ordered** the TCP/IP NFS Feature for VM/ESA, most of the installation steps have been completed for you. You need only to complete the steps provided in this section.

The TCP/IP NFS Feature for VM/ESA must be explicitly enabled for use. To enable the TCP/IP NFS Feature, use the steps that follow.

1 Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

2 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

3 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

b Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr  
access 51d d
```

4 Set the TCP/IP NFS Feature for VM/ESA to the enabled state.

```
vmfins enable ppf 5735nfst nocomp
```

This command will:

- set the TCP/IP NFS Feature as ENABLED in VMSES/E and CP
- create a 5735NFST PRODSYS file on the A-disk, which contains a CP system configuration PRODUCT statement with a state of: ENABLED

5 In order to **retain the ENABLED state** for the TCP/IP NFS Feature, **update the CP system configuration file** with the information in the 5735NFST PRODSYS file.

The 5735NFST PRODSYS file was created by VMFINS in the previous step. You need to update the CP system configuration file so that the next time you IPL your system, the TCP/IP NFS Feature will be in the ENABLED state. If you are not authorized to update the CP system configuration file, contact your CP system administrator.

The CP system configuration file resides on the CP “parm” disk (the MAINT CF1 or CF2 minidisk); by default, this file is named: SYSTEM CONFIG. The necessary updates need to be made to the “PRODUCT ENABLE/DISABLE INFORMATION” section of this file. You will need to replace the current DISABLED entry for PRODID 5735NFST (TCP/IP NFS Feature for VM/ESA) with the entry from the 5735NFST PRODSYS file (created by VMFINS in the previous step). If necessary, refer to the *VM/ESA Planning and Administration* manual for more information about the CP system configuration file.

The TCP/IP NFS Feature is now enabled on your system.

6.4 Installing the TCP/IP Source Feature for VM/ESA

6.4.1 Plan Your Installation for the TCP/IP Source Feature for VM/ESA

The VMFINS command will be used to plan the installation. This is a two-step process that will:

- load the first tape file, which contains installation files
- generate a “PLANINFO” file that lists:
 - all user ID and MDISK (minidisk) requirements
 - required products

To obtain planning information for your environment:

1 Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

2 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

3 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

b Establish write access to the Software Inventory minidisk.

link maint 51d 51d mr
access 51d d

4 Mount the TCP/IP Source Feature for VM/ESA installation tape and attach it to this user ID at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

5 Load the TCP/IP Source Feature for VM/ESA product control files to the 51D minidisk.

vmfins install info (nomemo)

The NOMEMO option will load the memo from the tape but will not issue a prompt to send it to the system printer. Specify the MEMO option if you want to be prompted for printing the memo.

This command will perform the following:

- load the Memo-to-Users
- load various product control files, including the Product Parameter File (PPF) and the PRODPART files
- create the VMFINS PRODLIST file on your A-disk. This file contains a list of products on the installation tape.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS1909I VMFINS PRODLIST created on your A-disk
VMFINS2760I VMFINS processing completed successfully
Ready;
```

6 Obtain resource planning information for the TCP/IP Source Feature for VM/ESA.

Note: The product will **not** be loaded by the VMFINS command at this time.

vmfins install ppf 5735falv {source | sourcesfs} (plan nomemo

Use **source** if you plan to install to install the TCP/IP Source Feature for VM/ESA to minidisks; use **sourcesfs** to install to Shared File System directories.

The PLAN option indicates that VMFINS will perform requisite checking, plan system resources, and provide an opportunity to override the defaults in the product parameter file.

You can override any of the following:

- the name of the product parameter file
- default product user IDs
- minidisk/directory definitions

Notes:

- a. If you change the PPF name, a default user ID, or other parameters via a PPF override, you'll need to use your changed values instead of those indicated (when appropriate), throughout the rest of these installation instructions. For example, you'll need to specify your PPF override file name instead of 5735FALV for certain VMSES/E commands.
- b. If you're not familiar with creating PPF overrides using VMFINS, you should review the "Using the Make Override Panel" section in Chapter 3 of the *VMSES/E Introduction and Reference* before you continue.
- c. For more information about changing the VMSYS file pool name, refer to Chapter 3 of the *VMSES/E Introduction and Reference*.

```

VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5735FALV SOURCE :PRODID
5735FALV%SOURCE?
Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5735FALV SOURCE :PRODID 5735FALV%SOURCE
VMFREQ2805I Product :PPF 5735FALV SOURCE :PRODID 5735FALV%SOURCE has passed
requisite checking
VMFINT2603I Planning for the installation of product :PPF 5735FALV SOURCE :PRODID
5735FALV%SOURCE
VMFRMT2760I VMFRMT processing started
VMFRMT2760I VMFRMT processing completed successfully
VMFINS2760I VMFINS processing completed successfully

```

Note!

Complete this step only if you received message VMFREQ2806W.

If you receive the following VMFREQ2806W message (from specifying either SOURCE or SOURCESFS), you must do some additional processing.

```

VMFREQ2806W The following requisites for product 5735FALV component SOURCE are
not satisfied
VMFREQ2806W Type          Product Component          PTF
-----
VMFREQ2806W Prerequisite 5735FALT

```

This message indicates that you have not yet installed the TCP/IP Feature for VM/ESA. You must install the TCP/IP Feature for VM/ESA before you install the TCP/IP Source Feature for VM/ESA. Then, return here to complete the installation of the TCP/IP Source Feature for VM/ESA.

- 7** Review the install message log (\$VMFINS \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview install

6.4.2 Allocate Resources for Installing the TCP/IP Source Feature for VM/ESA

Use the planning information in the 5735FALV PLANINFO file, created in the **PLAN** step, to:

- Create the P735FALT Source minidisk or SFS directory

OR

- Enlarge the existing P735FALT Source minidisk or SFS directory, if it isn't the appropriate size.

6.4.2.1 Installing the TCP/IP Source Feature for VM/ESA to Minidisks

- 1** Obtain the disk information from the 5735FALV PLANINFO file.
- 2** Update the system directory:
 - Modify the P735FALT directory entry to contain a source minidisk of the appropriate size. Use one of the two Source disk sizes specified in Figure 12 on page 30 when you define this disk, depending on whether you intend to unpack source files after installation.
 - Place the new directory on-line using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

Formatting Reminder

The Source minidisk must be formatted before installing the TCP/IP Source Feature for VM/ESA.

6.4.2.2 Installing the TCP/IP Source Feature for VM/ESA to SFS Directories

Note!

Perform the steps provided in this section **only** if you previously moved the TCP/IP Feature service minidisks to Shared File System directories.

- 1** Obtain the disk/directory information from the 5735FALV PLANINFO file.
- 2** Determine the number of 4K blocks required for the Source SFS directory. Use one of the two 4K sizes specified for this directory in Figure 12 on page 30, depending on whether you intend to unpack the source files after installation.

This information will be used when the P735FALT user ID is enrolled in the VMSYS file pool.

- 3 Enroll user P735FALT in the VMSYS file pool, if not already done. Use the ENROLL USER command:

```
ENROLL USER P735FALT VMSYS: (BLOCKS blocks)
```

where *blocks* is the number of 4K blocks you calculated in the previous step.

Note: This must be done from a user ID that is an administrator for the VMSYS file pool.

- 4 If P735FALT was already enrolled in the VMSYS file pool, you might instead need to increase P735FALT's storage to hold the source files. To do this, use the MODIFY USER command:

```
MODIFY USER +blocks FOR P735FALT VMSYS:
```

where *blocks* is the number of 4K blocks that you calculated in step 2 on page 53.

Note: This must be done from a user ID that is an administrator for the VMSYS file pool.

- 5 Determine if there are enough blocks available in the file pool to install the TCP/IP Source Feature for VM/ESA. This information can be obtained via the QUERY FILEPOOL STATUS command. Near the end of the output from this command is a list of minidisks in the file pool and the number of blocks free. If the number of blocks free is smaller than the total number needed to install the TCP/IP Source Feature, you will need to add space to the VMSYS file pool before you continue with this installation process. See *VM/ESA File Pool Planning, Administration and Operation* for information about adding space to a file pool.

- 6 Use the CREATE DIRECTORY command to create the required subdirectory, which is listed in the 5735FALV PLANINFO file. If necessary, refer to the *VM/ESA CMS Command Reference* for more information about the CREATE DIRECTORY command.

Note: Only create the Source directory if it does not already exist.

```
set filepool vmsys:  
create directory vmsys:p735falt.tcpip.source
```


6.4.3 Install the TCP/IP Source Feature for VM/ESA

- 1** Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2** Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 3** If necessary, establish the appropriate access to the VMSES/E minidisks.

- a** Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

- b** Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```

- 4** Have the TCP/IP Source Feature for VM/ESA installation tape mounted and attached to P735FALT at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

- 5** Install the TCP/IP Source Feature for VM/ESA.

Notes:

- If you've already created a PPF override file, you should specify your override file name after the **PPF** keyword for the following VMFINS command.
- You may be prompted for additional information during VMFINS INSTALL processing depending on your installation environment. If you're unsure how to respond to a prompt, refer to the “Installing Products with VMFINS” and “Install Scenarios” chapters in the *VMSES/E Introduction and Reference* to decide how to proceed.

vmfins install ppf 5735falv {source | sourcesfs} (nomemo nolink

Use **source** to install the TCP/IP Source Feature for VM/ESA to minidisks; use **sourcesfs** to install to Shared File System directories.

nolink prevents VMFINS from linking the appropriate minidisks; it will only access them if they are not accessed.

```

VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5735FALV SOURCE :PRODID
5735FALV%SOURCE?
Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5735FALV SOURCE :PRODID 5735FALV%SOURCE
VMFREQ2805I Product :PPF 5735FALV SOURCE :PRODID 5735FALV%SOURCE has passed
requisite checking
VMFINT2603I Installing product :PPF 5735FALV SOURCE :PRODID 5735FALV%SOURCE
VMFSET2760I VMFSETUP processing started
VMFUTL2205I Minidisk|Directory Assignments:
String Mode Stat Vdev Label/Directory
VMFUTL2205I BASE2 E R/W 2B3 FAL2B3
VMFUTL2205I ----- A R/W 191 FAL191
VMFUTL2205I ----- B R/O 5E5 MNT5E5
VMFUTL2205I ----- D R/W 51D MNT51D
VMFUTL2205I ----- S R/O 190 MNT190
VMFUTL2205I ----- Y/S R/O 19E MNT19E
VMFSET2760I VMFSETUP processing completed successfully
VMFREC2760I VMFREC processing started
VMFREC1852I Volume 1 of 1 of INS TAPE 9910
VMFREC1851I (1 of 1) VMFRCALL processing SOURCE
VMFRCA2159I Loading part(s) to BASE2 2B3 (E)
VMFRCA2159I Loaded nnn part(s) to BASE2 2B3 (E)
VMFREC2760I VMFREC processing completed successfully
VMFINT2603I Product installed
VMFINS2760I VMFINS processing completed successfully

```

- 6 Review the install message log (\$VMFINS \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview install

6.4.4 Place the TCP/IP Source Feature for VM/ESA Into Production

The TCP/IP Source Feature for VM/ESA does not contain any executable files, so there is nothing to put into production or configure. The source files remain on the Source disk.

6.4.4.1 Unpack the TCP/IP Source Feature for VM/ESA Source Files

The TCP/IP Source Feature for VM/ESA has been installed with packed source files. If you wish to unpack the source files, log on P735FALT and invoke the CMS COPYFILE command with the UNPACK option.

Note: The Source minidisk (or for SFS, the number of 4K blocks allocated for the P735FALT user ID) must be sufficiently large to store the unpacked files.

access 2b3 e
copyfile *fn ft* e (unpack olddate

Access the Source directory if you installed to the Shared File System.

If **all** files on the disk are packed, you can unpack them all by specifying * * for *fn ft*; otherwise, you should unpack TCP/IP Source Feature for VM/ESA files on an individual basis.

The TCP/IP Source Feature for VM/ESA is now installed and built on your system.

6.5 Installing the TCP/IP DES Feature for VM/ESA

6.5.1 Plan Your Installation for the TCP/IP DES Feature for VM/ESA

The VMFINS command will be used to plan the installation. This is a two-step process that will:

- load the first tape file, which contains installation files
- generate a “PLANINFO” file that lists:
 - all user ID and MDISK (minidisk) requirements
 - required products

To obtain planning information for your environment:

1 Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

2 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

3 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

b Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```

4 Mount the TCP/IP DES Feature for VM/ESA installation tape and attach it to this user ID at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

5 Load the TCP/IP DES Feature for VM/ESA product control files to the 51D minidisk.

vmfins install info (nomemo)

The NOMEMO option will load the memo from the tape but will not issue a prompt to send it to the system printer. Specify the MEMO option if you want to be prompted for printing the memo.

This command will perform the following:

- load the Memo-to-Users
- load various product control files, including the Product Parameter File (PPF) and the PRODPART files
- create the VMFINS PRODLIST file on your A-disk. This file contains a list of products on the installation tape.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS1909I VMFINS PRODLIST created on your A-disk
VMFINS2760I VMFINS processing completed successfully
Ready;
```

6 Obtain resource planning information for the TCP/IP DES Feature for VM/ESA.

Note: The product will **not** be loaded by the VMFINS command at this time.

vmfins install ppf 5735falu {kerbdes | kerbdessfs} (plan nomemo

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

The PLAN option indicates that VMFINS will perform requisite checking, plan system resources, and provide an opportunity to override the defaults in the product parameter file.

You can override any of the following:

- the name of the product parameter file
- default product user IDs
- minidisk/directory definitions

Notes:

- a. If you change the PPF name, a default user ID, or other parameters via a PPF override, you'll need to use your changed values instead of those indicated (when appropriate), throughout the rest of these installation instructions, as well as those provided for servicing the TCP/IP DES Feature. For example, you'll need to specify your PPF override file name instead of 5735FALU for certain VMSES/E commands.
- b. If you're not familiar with creating PPF overrides using VMFINS, you should review the "Using the Make Override Panel" section in Chapter 3 of the *VMSES/E Introduction and Reference* before you continue.
- c. For more information about changing the VMSYS file pool name, refer to Chapter 3 of the *VMSES/E Introduction and Reference*.

```

VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5735FALU KERBDES :PRODID
5735FALU%KERBDES?
Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5735FALU KERBDES :PRODID 5735FALU%KERBDES
VMFREQ2805I Product :PPF 5735FALU KERBDES :PRODID 5735FALU%KERBDES has passed
requisite checking
VMFINT2603I Planning for the installation of product :PPF 5735FALU KERBDES :PRODID
5735FALU%KERBDES
VMFRMT2760I VMFRMT processing started
VMFRMT2760I VMFRMT processing completed successfully
VMFINS2760I VMFINS processing completed successfully

```

Note!

Complete this step only if you received message VMFREQ2806W.

If you receive the following VMFREQ2806W message (from specifying either KERBDES or KERBDESSFS), you must do some additional processing.

```

VMFREQ2806W The following requisites for product 5735FALU component KERBDES are
not satisfied
VMFREQ2806W Type          Product  Component      PTF
-----
VMFREQ2806W Prerequisite  5735FALT

```

This message indicates that you have not yet installed the TCP/IP Feature for VM/ESA. You must install the TCP/IP Feature for VM/ESA before you install the TCP/IP DES Feature for VM/ESA. Then, return here to complete the installation of the TCP/IP DES Feature for VM/ESA.

- 7** Review the install message log (\$VMFINS \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview install

6.5.2 Allocate Resources for Installing the TCP/IP DES Feature for VM/ESA

Note: The P735FALT user ID necessary to install the TCP/IP DES Feature, and all required resources should already exist on your system, as a result of installation of the VM/ESA Version 2 Release 4.0 System DDR.

Likewise, the VMKERB and ADMSERV user IDs which make use of the function provided by the TCP/IP DES Feature, should be present as well, for this same reason.

Thus, no specific or additional resources need to be allocated to install the TCP/IP DES Feature.

6.5.3 Install the TCP/IP DES Feature for VM/ESA

- 1** Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2** Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 3** If necessary, establish the appropriate access to the VMSES/E minidisks.

- a** Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

- b** Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```

- 4 Have the TCP/IP DES Feature for VM/ESA installation tape mounted and attached to P735FALT at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.
- 5 Install the TCP/IP DES Feature for VM/ESA.

Notes:

- If you've already created a PPF override file, you should specify your override file name after the **PPF** keyword for the following VMFINS command.
- You may be prompted for additional information during VMFINS INSTALL processing depending on your installation environment. If you're unsure how to respond to a prompt, refer to the "Installing Products with VMFINS" and "Install Scenarios" chapters in the *VMSES/E Introduction and Reference* to decide how to proceed.

vmfins install ppf 5735falu {kerbdes | kerbdessfs} (nomemo nolink

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

nolink prevents VMFINS from linking the appropriate minidisks; it will only access them if they are not accessed.

```

VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5735FALU KERBDES :PRODID
5735FALU%KERBDES?
Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5735FALU KERBDES :PRODID 5735FALU%KERBDES
VMFREQ2805I Product :PPF 5735FALU KERBDES :PRODID 5735FALU%KERBDES has passed
requisite checking
VMFINT2603I Installing product :PPF 5735FALU KERBDES :PRODID 5735FALU%KERBDES
VMFSET2760I VMFSETUP processing started
VMFUTL2205I Minidisk|Directory Assignments:
String Mode Stat Vdev Label/Directory
VMFUTL2205I LOCALMOD E R/W 2C4 FAL2C4
VMFUTL2205I LOCALSAM F R/W 2C2 FAL2C2
VMFUTL2205I APPLY G R/W 2A6 FAL4A6
VMFUTL2205I H R/W 2A2 FAL4A2
VMFUTL2205I DELTA I R/W 2D2 FAL2D2
VMFUTL2205I BUILD1 J R/W 491 FAL491
VMFUTL2205I BUILD3 K R/W 492 FAL492
VMFUTL2205I BASE1 L R/W 2B2 FAL2B2
VMFUTL2205I BASE2 M R/W 2B3 FAL2B3
VMFUTL2205I ----- A R/W 191 FAL191
VMFUTL2205I ----- B R/O 5E5 MNT5E5
VMFUTL2205I ----- D R/W 51D MNT51D
VMFUTL2205I ----- S R/O 190 MNT190
VMFUTL2205I ----- Y/S R/O 19E MNT19E
VMFSET2760I VMFSETUP processing completed successfully
VMFREC2760I VMFREC processing started
VMFREC1852I Volume 1 of 1 of INS TAPE 9920
VMFREC1851I (1 of 8) VMFRCAXL processing AXLIST
VMFRCX2159I Loading nnn part(s) to DELTA 2D2 (I)
VMFREC1851I (2 of 8) VMFRCPTF processing PARTLST
VMFRCX2159I Loading nnn part(s) to DELTA 2D2 (I)
VMFREC1851I (3 of 8) VMFRCCOM processing DELTA
VMFRCX2159I Loading nnn part(s) to DELTA 2D2 (I)
VMFREC1851I (4 of 8) VMFRCALL processing APPLY
VMFRCA2159I Loading part(s) to APPLY 2A6 (G)
VMFRCA2159I Loaded nnn part(s) to APPLY 2A6 (G)
VMFREC1851I (5 of 8) VMFRCALL processing SERVER
VMFRCA2159I Loading part(s) to BUILD1 491 (J)
VMFRCA2159I Loaded nnn part(s) to BUILD1 491 (J)
VMFREC1851I (6 of 8) VMFRCALL processing KERBDES
VMFRCA2159I Loading part(s) to BUILD3 492 (K)
VMFRCA2159I Loaded nnn part(s) to BUILD3 492 (K)
VMFREC1851I (7 of 8) VMFRCALL processing BASE
VMFRCA2159I Loading part(s) to BASE1 2B2 (L)
VMFRCA2159I Loaded nnn part(s) to BASE1 2B2 (L)
VMFREC1851I (8 of 8) VMFRCALL processing SOURCE
VMFRCA2159I Loading part(s) to BASE2 2B3 (M)
VMFRCA2159I Loaded nnn part(s) to BASE2 2B3 (M)
VMFREC2760I VMFREC processing completed successfully
VMFINT2603I Product installed
VMFINS2760I VMFINS processing completed successfully

```

- 6 Review the install message log (\$VMFINS \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview install

6.5.3.1 Update the Build Status Table for the TCP/IP DES Feature for VM/ESA

- 1 Update the VM SYSBLDS software inventory file for the TCP/IP DES Feature for VM/ESA.

vmfins build ppf 5735falu {kerbdes | kerbdessfs} (serviced nolink

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

The **serviced** option will build any parts that were not built on the installation tape and update the Software Inventory build status table showing that product 5735FALU has been built.

nolink prevents VMFINS from linking the appropriate minidisks; it will only access them if not accessed.

6.5.3.2 Rebuild Objects to Incorporate the TCP/IP DES Feature

The code provided by the TCP/IP DES Feature is effective only after it is incorporated in several Kerberos objects. These objects are listed in Figure 17 on page 70 of 6.5.4.4, "TCP/IP DES Feature for VM/ESA Run-time Files." Rebuilding these objects after installing the TCP/IP DES Feature enables the DES-capable function provided by this feature.

- 1 Ensure Language Environment run-time library support is available.
- 2 Rebuild the appropriate Kerberos objects to incorporate the TCP/IP DES Feature

Note: When you issue the VMFBLD commands that follow, specify the TCP/IP Feature PPF file name (**5735falt**) and component (**tcpip** or **tcpipsfs**), and not those for the TCP/IP DES Feature.

```
vmfbld ppf 5735falt {tcpip | tcpipsfs} tckblc91 * (all
vmfbld ppf 5735falt {tcpip | tcpipsfs} tckblc92 * (all
```

Use **tcPIP** if the TCP/IP Feature default minidisk environment has been maintained; use **tcPIpsfs** if the service minidisks were moved to Shared File System directories.

- 3 Review the build message log (\$VMFBLD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview build

6.5.4 Place the TCP/IP DES Feature for VM/ESA Into Production

6.5.4.1 Copy TCP/IP DES Feature Run-time Files Into Production

- 1 Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 3 If necessary, establish the appropriate access to the VMSES/E minidisks.

- a Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

- b** Establish write access to the Software Inventory minidisk.

link maint 51d 51d mr
access 51d d

- 4** Access the P735FALT 491 minidisk.

access 491 j

The 491 minidisk is where the TCP2PROD EXEC resides.

- 5** If necessary, modify the 5735FALU CATALOG file so that the appropriate files will be placed into production for your environment.

The 5735FALU CATALOG file is used by the TCP2PROD command to copy files to TCP/IP Feature minidisks. See Appendix A, "The TCP2PROD Command" on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

Notes:

- a. For reference purposes, product run-time files that can be processed using the KERBRUN section of this file are listed in Figure 17 on page 70.
 - b. To ensure you are notified of any service-related changes to the 5735FALU CATALOG file, make changes to this file using a VMSES/E local modification. See Appendix B, "Modifying TCP/IP Feature CATALOG Files" on page 121 for more information about how to change the 5735FALU CATALOG file in this manner.
- 6** (Optional) If necessary, establish a write link to any TCP/IP Feature production or server minidisks which are not yet linked in this mode.

LINK statements for the various TCP/IP Feature minidisks are present in the P735FALT directory entry that was defined as part of the VM/ESA Version 2 Release 4.0 System DDR that is already installed.

If you have changed the default installation user ID or use different minidisk addresses in your environment, you may need to manually link the necessary TCP/IP production and server minidisks. See Figure 15 on page 43 and Figure 16 on page 44 for the link addresses you should use. If you have a PPF override that has changed any of these addresses, use your values.

link tcpipid vdev1 vdev2 mr

Note: If another user already has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR)

mode, after which you need to re-issue the above LINK and ACCESS commands. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 7 Modify the VMSES PARTCAT entry for the DES TXTLIB object so that it can be copied into production.

vmfsim modify vmses partcat *fm-492* tdata :partid des txtlib :prodid 5735falt%tcpip (replace

where *fm-492* is the file mode of the TCPMAINT 492 minidisk.

- 8 Copy TCP/IP DES Feature files into production using the TCP2PROD command. The files copied via the following command are those identified in the KERBRUN section of the 5735FALU CATALOG file.

Verifying Your Environment

When you perform this step, you should first issue the TCP2PROD command with the **TEST** option, to verify that all resources can be accessed and that the appropriate files will be processed. See Appendix A, "The TCP2PROD Command" on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

With the **TEST** option in effect, **no files are copied into production**. Resolve any reported problems, then invoke TCP2PROD without the TEST option, as illustrated below.

tcp2prod 5735falt {tcpip | tcpipsfs} 5735falu kerbrun (setup

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

6.5.4.2 Configure the TCP/IP DES Feature for VM/ESA for Your Installation

There are no customizable configuration files unique to the TCP/IP DES Feature for VM/ESA. If necessary, see *TCP/IP Function Level 320 Planning and Customization* (SC24-5847) for detailed information about how to configure the DES-capable Kerberos functions for your environment.

6.5.4.3 (Optional) Copy TCP/IP DES-capable Client Code to the VM/ESA Product Code Disk

If you previously copied the TCP/IP Feature Kerberos client code to the VM/ESA product code disk, you should replace these files with their DES-capable counterparts. See Appendix G, “Copying TCP/IP Feature Client Code to the Y-Disk” on page 145 for additional information and instructions concerning this process.

6.5.4.4 TCP/IP DES Feature for VM/ESA Run-time Files

Figure 17 lists the name and location of the TCP/IP DES Feature for VM/ESA run-time files provided by IBM, and the names and location of these files after they've been placed into production.

Figure 17. Files to Copy into Production - TCP/IP DES Feature for VM/ESA

P735FALT Test Disk	P735FALT Link Address	Original File Name/Type	Production File Name/Type	Server Minidisk
491	591	KERBEROS MODULE	(no change)	_____
491	591	ADM_SERV MODULE	(no change)	_____
491	591	EXT_SRVT MODULE	(no change)	_____
491	591	KDB_DEST MODULE	(no change)	_____
491	591	KDB_EDIT MODULE	(no change)	_____
491	591	KDB_INIT MODULE	(no change)	_____
491	591	KDB_UTIL MODULE	(no change)	_____
492	592	KADMIN MODULE	(no change)	_____
492	592	KDESTROY MODULE	(no change)	_____
492	592	KINIT MODULE	(no change)	_____
492	592	KLIST MODULE	(no change)	_____
492	592	KPASSWD MODULE	(no change)	_____
492	592	KSTASH MODULE	(no change)	_____
492	592	SAMPLE_C MODULE	(no change)	_____
492	592	SAMPLE_S MODULE	(no change)	_____
492	592	DES TXTLIB	(no change)	_____

6.5.4.5 Unpack the TCP/IP DES Feature for VM/ESA Source Files

The TCP/IP DES Feature for VM/ESA has been installed with packed source files. If you wish to unpack the source files, log on P735FALT and invoke the CMS COPYFILE command with the UNPACK option. The Source disk must have been defined large enough to store the unpacked files.

access 2b3 m
copyfile *fn ft m* (unpack olddate

Access the Source directory if you installed to the Shared File System.

If **all** files on the disk are packed, you can unpack them all by specifying * * for *fn ft*; otherwise, you should unpack TCP/IP DES Feature for VM/ESA files on an individual basis.

The TCP/IP DES Feature for VM/ESA is now installed and built on your system.

7.0 Service Instructions

This section contains the procedures to install corrective (COR) and preventive service to the TCP/IP Feature and TCP/IP DES features, using VMSES/E. Service for the TCP/IP Source and TCP/IP NFS features is included in the service for the TCP/IP Feature for VM/ESA. Preventive service (for only the TCP/IP Feature for VM/ESA) is delivered via a Recommended Service Upgrade (RSU) tape.

To become more familiar with service using VMSES/E, you should read the introductory chapters in:

- *VMSES/E Introduction and Reference (GC24-5837)*

These manuals also contain the command syntax for the VMSES/E commands listed in the procedure.

Each step of the servicing instructions must be followed. Do not skip any step unless otherwise directed.

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you used different user IDs, minidisk addresses, or SFS directories to install the TCP/IP Feature for VM/ESA, adapt these instructions as needed for your environment.

Note!

The sample console output presented throughout these instructions was produced on a VM/ESA Version 2 Release 4.0 system and assumes that you installed to minidisks using the default PPF and component names.

7.1 VMSES/E Service Process Overview

The following is a brief description of the main steps in servicing TCP/IP Feature for VM/ESA and the features using VMSES/E.

- Merging Service

Use the VMFMRDSK command to clear the alternate apply disk before receiving new service. This allows you to easily remove the new service if a serious problem is found.

- Receiving Service

The VMFREC command receives service from the delivery media and places it on the Delta disk.

- Applying Service

The VMFAPPLY command updates the version vector table (VVT), which identifies the service level of all the serviced parts. In addition, AUX files are generated from the VVT for parts that require them.

- Reapplying Local Service (if applicable)

All local service (mods) must be entered into the software inventory to allow VMSES/E to track the changes and build them into the system. Refer to Chapter 7 of the *VM/ESA Service Guide* for this procedure.

- Building New Levels

The build task generates the serviced level of an object and places the new object on a test BUILD disk.

- Placing the New Service into Production

Once the service is satisfactorily tested it should be put into production by copying the new service to the production disks. Customized files that have been serviced must be customized again.

7.2 Servicing the TCP/IP Feature for VM/ESA

7.2.1 Important Service Notes

- Service for the TCP/IP Source and TCP/IP NFS features is included with service for the TCP/IP Feature for VM/ESA.

7.2.1.1 PPF Override Considerations

- The *ppfname* used throughout these servicing instructions is **5735FALT**, which assumes you are using the PPF supplied by IBM for TCP/IP Feature for VM/ESA. If you have your own PPF override file for the TCP/IP Feature for VM/ESA, you should use your file's *ppfname* instead of **5735FALT**. The *ppfname* you use should be used **throughout** the rest of this procedure.

7.2.1.2 Language Environment Run-time Library Considerations

- If you service TCP/IP Feature C components, the Language Environment run-time library must be available when you build serviced objects using the VMFBLD command. If the Language Environment run-time library does not reside on a system minidisk automatically accessed by VMSES/E (such as the MAINT 19E minidisk), you need to ensure the appropriate minidisk is available (perhaps through the use of a PPF override).

7.2.1.3 Installing Service for Multiple Features

- If you have service that affects **both** the TCP/IP Feature and TCP/IP DES Feature, you should first complete the service process for the TCP/IP DES Feature, then complete the service process for the TCP/IP Feature, to ensure specific Kerberos DES-capable objects are correctly built.

Quick Index for Service Instructions

Select the service instructions you should use, based on the type of service you are installing:

- TCP/IP Feature RSU Service — Begin with 7.2.2, “Preventive (RSU) Service for the TCP/IP Feature for VM/ESA” on page 75
- TCP/IP Feature COR Service — Begin with 7.2.3, “Corrective (COR) service for the TCP/IP Feature for VM/ESA” on page 86
- TCP/IP DES Feature COR Service — Begin with 7.5.2, “Corrective (COR) Service for the TCP/IP DES Feature for VM/ESA” on page 102

7.2.2 Preventive (RSU) Service for the TCP/IP Feature for VM/ESA

Preventive service is available periodically on the Recommended Service Upgrade (RSU) tape. Each RSU is cumulative and contains selected important PTFs. The service on the RSU is in pre-applied, pre-built format, and includes the serviced files, the objects that were rebuilt using these files, and the updated software inventory. This makes installing the new service much quicker, but will require that you re-apply any reach-ahead service (service that you have applied that is not on the RSU). RSU tapes are in install format, so the VMFINS command is used to load the tape.

7.2.2.1 Prepare to Receive Service

Electronic Service (Envelope File)

If you have received the RSU electronically or on CD-ROM, follow the appropriate instructions to retrieve and decompact the envelope file to your A-disk. Decompression is currently done by using the DETERSE module, which will produce a decompacted file that has a file name format of RPTF*num* and a file type of SERVLINK. You will need to supply this file name with the VMFINS commands that follow.

1 Log on the TCP/IP Feature service user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

2 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

3 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

link MAINT 5e5 5e5 rr
access 5e5 b

b Establish write access to the Software Inventory minidisk.

link maint 51d 51d mr
access 51d d

4 Have the TCP/IP Feature for VM/ESA RSU tape mounted and attached as 181 to **P735FALT**.

5 Receive the product documentation (5735FALT MEMO) to the 51D minidisk and identify the products and components that have service on the tape. The product documentation contains the amount of storage needed to receive the service on the RSU. Use this to ensure there is enough space on the service disks or directories.

a If receiving the RSU from **tape**, issue:

vmfins install info (nomemo

nomemo will load but not print the memo.

b If receiving the RSU from an **envelope** file, issue:

vmfins install info (nomemo env rptfnum

nomemo will load but not print the memo.

6 Clear the alternate APPLY disk to ensure that you have a clean disk for new service.

vmfmrisk 5735falt {tcpip | tcpipsfs} apply (setup

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command copies the alternate APPLY disk to the production APPLY disk and then clears the alternate APPLY disk.

- 7 Review the merge message log (\$VMFMRD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview mrd

- 8 Invoke the VMFPSU command to obtain additional information about the service contained on the RSU and how it will affect your local modifications. This command creates an output file, *appid* **PSUPLAN**, which you can review. See the *VM/ESA Service Guide* for an explanation of this file.

vmfpsu 5735falt {tcpip | tcpipsfs}

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command produces an output file comparing the service on the RSU to the service on your system. The file name is *appid* **PSUPLAN**, where *appid* is specified in the PPF file.

7.2.2.2 Receive the Service

- 1 Receive the service on the RSU.

Since the RSU contains pre-applied, pre-built service in install format, the VMFINS command will load the new service to the DELTA disk, the updated apply service inventory to the APPLY disk, and the pre-built objects to the appropriate test build disks.

a If receiving the RSU from **tape**, issue:

vmfins install ppf 5735falt {tcpip | tcpipsfs} (nomemo nolink

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

nolink prevents VMFINS from linking the appropriate minidisks; it will only access them if not accessed.

b If receiving the RSU from an **envelope** file, issue:

vmfins install ppf 5735falt {tcpip | tcpipsfs} (nomemo nolink env rptfnum

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

nolink prevents VMFINS from linking the appropriate minidisks; it will only access them if not accessed.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5735FALT TCPIP :PRODID
5735FALT%TCPIP?
Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF 5735FALT TCPIP :PRODID 5735FALT%TCPIP
.
.
.
VMFINS2760I VMFINS processing completed successfully
```

2 Review the install message log (\$VMFINS \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview install

7.2.2.3 Apply the Service

Since the service on the RSU is already pre-applied, this step will just reapply any reach-ahead service (service that is on your system but not on the RSU).

- 1 Reapply reach-ahead service.

vmfapply ppf 5735falt {tcpip | tcpipsfs}

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command reapplies the reach-ahead service on your system. The version vector table (VVT) is updated with all serviced parts and all necessary AUX files are generated on the alternate apply disk.

- 2 Review the apply message log (\$VMFAPP \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview apply

- 3 Re-work and re-apply local service, if it has been affected by the service on the RSU.
 - a. Affected local modifications are indicated in the output file created by the VMFPSU command invoked in a step 8 on page 77.
 - b. For information on re-working local modifications, refer to Chapter 7 in the *VM/ESA Service Guide*. Follow the steps that are applicable to your local modification.

The following substitutions may need to be made:

- **esalcl** should be: **5735falt**
- **esa** should be: **5735falt**
- *compname* should be: **tcpip** or **tcpipsfs**
- *appid* should be: **5735falt**
- *fm-local* should be the file mode of the 2C4 minidisk
- *fm-applyalt* should be the file mode of the 2A6 minidisk

Keep in mind that when you get to the following step in the *VM/ESA Service Guide*:

- “Rebuilding Objects”

you should return to using this program directory and continue with 7.2.2.4, “Update the Build Status Table” on page 80.

7.2.2.4 Update the Build Status Table

1 Update the Build Status Table with serviced parts.

vmfbld ppf 5735falt {tcpip | tcpipsfs} (status

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command updates the Build Status Table to determine what remains to be built.

Note - \$PPF Service

If a \$PPF file has been serviced you will get the following prompt:

```
VMFBLD2185R The following source product parameter files have been
              serviced:
VMFBLD2185R 5735FALT $PPF
VMFBLD2185R When source product parameter files are serviced, all
              product parameter files built from them must be recompiled
              using VMFPPF before VMFBLD can be run.
VMFBLD2185R Enter zero (0) to have the serviced source product
              parameter files built to your A-disk and exit VMFBLD so
              you can recompile your product parameter files with VMFPPF.
VMFBLD2185R Enter one (1) to continue only if you have already
              recompiled your product parameter files with VMFPPF.
```

0

Enter a 0 and complete the following steps before you continue.

```
VMFBLD2188I Building 5735FALT $PPF
              on 191 (A) from level $PFnnnnn
```

vmfppf 5735falt *

Note: If you've created your own PPF override, use your PPF name instead of 5735FALT.

copyfile 5735falt \$ppf a = = d (olddate replace

erase 5735falt \$ppf a

Note: **Do not** use your own PPF name in place of 5735FALT for these COPYFILE and ERASE commands.

vmfbld ppf 5735falt {tcpip | tcpipsfs} (status

1

Re-issue VMFBLD to complete updating the build status table.

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories. When you receive the prompt that was previously displayed, enter a 1 to continue.

- 2 Use VMFVIEW to review the build status messages, and see what objects need to be built.

vmfview build

7.2.2.5 Build Serviced Objects

The RSU contains pre-built service, so this step will build only objects that were affected by any reach-ahead and local service that was reapplied.

- 1 Ensure Language Environment run-time library support is available if you are applying service to functions that require this support.
- 2 Rebuild TCP/IP Feature for VM/ESA serviced parts.

vmfbld ppf 5735falt {tcpip | tcpipsfs} (serviced

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

Note - TCP/IP DES Feature Additional Build Steps

If the TCP/IP DES Feature is installed on your system **and** the CMCOPYR TEXT file has been affected by TCP/IP Feature service, you need to perform several additional steps to ensure the function provided by this feature is properly maintained.

1. Rebuild the TCP/IP DES Feature DES TXTLIB.

Note: When you issue the VMFBLD command that follows, ensure you use the TCP/IP DES Feature PPF file name (**5735falu**) and component (**kerbdes** or **kerbdessfs**), and not those for the TCP/IP Feature.

vmfbld ppf 5735falu {kerbdes | kerbdessfs} uskblides * (setup serviced

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

vmfview build

Review the build message log (\$VMFBLD \$MSGLOG), and correct any problems before going on.

2. Ensure Language Environment run-time library support is available.
3. Rebuild the Kerberos objects so they will continue to be DES-capable (these objects are listed in Figure 17 on page 70 of 6.5.4.4, "TCP/IP DES Feature for VM/ESA Run-time Files").

Note: When you issue the VMFBLD commands that follow, specify the TCP/IP Feature PPF file name (**5735falt**) and component (**tcpip** or **tcpipsfs**), and not those for the TCP/IP DES Feature.

vmfbld ppf 5735falt {tcpip | tcpipsfs} tckblc91 * (all
vmfbld ppf 5735falt {tcpip | tcpipsfs} tckblc92 * (all

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

vmfview build

Review the build message log (\$VMFBLD \$MSGLOG), and correct any problems before going on.

- 3 Review the build message log (\$VMFBLD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview build

7.2.2.6 Test the New Service

You should thoroughly test new service before you put it into production. To do this, add the links shown below for each server machine you're using, so that the server and client code test build minidisks are linked instead of their production counterparts. In so doing, you need to first detach the 591 and 592 production minidisks. The required LINK commands are:

```
LINK P735FALT 491 591 RR  
LINK P735FALT 492 592 RR
```

In addition, the NCS server virtual machine should link the test NCS administration code, if it was serviced. Again, first detach the 195 production minidisk before the following LINK command is issued.

```
LINK P735FALT 395 195 RR
```

When you test new service, you should consult any applicable documentation (for example, that provided with the APARs that comprise the service) to account for changes specific to new or changed function.

7.2.2.7 Place the Service into Production

When you have thoroughly tested the new service, you should put the service into production. See 7.2.4, "Place the New TCP/IP Feature for VM/ESA Service Into Production" on page 95 for an explanation of this task.

7.2.2.8 Determine the RSU Service Level

The service contained on each RSU constitutes a new service level. Use this service level when ordering corrective (COR) service. The service level is updated in the system inventory when the RSU is installed.

The current TCP/IP Feature RSU service level can be obtained by using either the VMSES/E VMFSIM QUERY command or the TCP/IP NETSTAT LEVEL command.

To use the VMFSIM QUERY command, the VMSES/E code (MAINT 5E5) and Software Inventory (MAINT 51D) minidisks must be accessed (thus, it is more readily issued while logged on the TCP/IP installation user ID, **P735FALT**).

vmfsim query vm sysrecs tdata :ppf 5735falt :stat

```
VMFSIP2408I RESULTS FOR
      TDATA :PPF 5735FALT :STAT
:PPF 5735FALT TCPIP
:STAT RECEIVED.04/01/99.01:23:45.P735FALT.RSU-9901
```

The last part of the status line indicates the TCP/IP RSU service level: 9901

To use the TCP/IP NETSTAT LEVEL command, the TCPIP server (or, the TCP/IP “stack”) must be operating, and the TCP/IP NETSTAT command must be available (thus, any user that has the TCPMAINT 592 minidisk accessed can issue this command).

access 592 *fm*
netstat level

where *fm* is an available file mode.

```
VM TCP/IP Netstat Level 320
IBM 2003; VM/ESA Version 2 Release 4.0, service level 9901, VM TCP/IP Level 320; RSU 9901
```

The last part of the returned output indicates the TCP/IP RSU service level: 9901

7.2.3 Corrective (COR) service for the TCP/IP Feature for VM/ESA

Corrective service for the TCP/IP Feature for VM/ESA is provided in COR format via tape or electronic envelope. It is installed using VMFREC, VMFAPPLY, and VMFBLD.

Electronic Service (Envelope File)

If you have received service electronically or on CD-ROM, follow the appropriate instructions to retrieve and decompact the envelope files to your A-disk. Decompaction is currently done by using the DETERSE module, which will produce decompacted files with the following file name formats:

- *VLSTnum*, for the documentation envelope
- *VPTFnum*, for the service envelope.

The file type for both of these files is (and must be) SERVLINK. You will need to supply these file names with the VMFREC commands that follow.

7.2.3.1 Prepare to Receive Service

- 1** Log on the TCP/IP Feature service user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2** Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

3 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

link MAINT 5e5 5e5 rr
access 5e5 b

b Establish write access to the Software Inventory minidisk.

link maint 51d 51d mr
access 51d d

4 Have the TCP/IP Feature for VM/ESA corrective (COR) service tape mounted and attached as 181 to **P735FALT**.

5 Establish the correct minidisk access order.

vmfsetup 5735falt {tcpip | tcpipsfs}

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

6 Receive the documentation. VMFREC, with the INFO option, loads the documentation and displays a list of all the products on the tape.

a If receiving service from **tape**, issue:

vmfrec info

This command will load the service memo to the 191 disk.

b If receiving service from an **envelope** file, issue:

vmfrec info (env vlstnum

This command will load the service memo to the 191 disk.

7 Review the receive message log (\$VMFREC \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview receive

Also make note of which products and components have service on the tape. To do this, use the PF5 key to show all status messages which identify the products on the tape.

- 8 Clear the alternate APPLY disk to ensure that you have a clean disk for new service.

vmfmrchk 5735falt {tcpip | tcpipsfs} apply

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command copies the alternate APPLY disk to the production APPLY disk and then clears the alternate APPLY disk.

- 9 Review the merge message log (\$VMFMRD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview mrd

7.2.3.2 Receive the Service

- 1 Receive the service.

a If receiving service from **tape**, issue:

vmfrec ppf 5735falt {tcpip | tcpipsfs}

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command receives service from your service tape. All new service is loaded to the DELTA disk.

b If receiving service from an **envelope** file, issue:

vmfrec ppf 5735falt {tcpip | tcpipsfs} (env vptfnum

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command receives service from your service envelope. All new service is loaded to the DELTA disk.

- 2 Review the receive message log (\$VMFREC \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview receive

7.2.3.3 Apply the Service

- 1 Apply the new service.

vmfapply ppf 5735falt {tcpip | tcpipsfs}

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command applies the service that you just received. The version vector table (VVT) is updated with all serviced parts and all necessary AUX files are generated on the alternate apply disk.

- 2 Review the apply message log (\$VMFAPP \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview apply

Note - Local Modifications

If you receive message VMFAPP2120W, you need to re-apply any local modifications before building the new TCP/IP Feature for VM/ESA. Refer to chapter 7 in the *VM/ESA Service Guide*. Follow the steps that are applicable to your local modification.

The following substitutions may need to be made:

- **esalcl** should be: **5735falt**
- **esa** should be: **5735falt**
- *compname* should be: **tcpip** or **tcpipsfs**
- *appid* should be: **5735falt**
- *fm-local* should be the file mode of the 2C4 minidisk
- *fm-applyalt* should be the file mode of the 2A6 minidisk

Keep in mind that when you get to the following step in the *VM/ESA Service Guide*:

- “Rebuilding Objects”

you should return to using this program directory and continue with 7.2.3.4, “Update the Build Status Table” on page 90.

7.2.3.4 Update the Build Status Table

- 1 Update the Build Status Table with serviced parts.

vmfbld ppf 5735falt {tcpip | tcpipsfs} (status

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

This command updates the Build Status Table to include objects that have to be built due to the new service just applied.

Note - \$PPF Service

If a \$PPF file has been serviced you will get the following prompt:

```
VMFBLD2185R The following source product parameter files have been
              serviced:
VMFBLD2185R 5735FALT $PPF
VMFBLD2185R When source product parameter files are serviced, all
              product parameter files built from them must be recompiled
              using VMFPPF before VMFBLD can be run.
VMFBLD2185R Enter zero (0) to have the serviced source product
              parameter files built to your A-disk and exit VMFBLD so
              you can recompile your product parameter files with VMFPPF.
VMFBLD2185R Enter one (1) to continue only if you have already
              recompiled your product parameter files with VMFPPF.
```

0

Enter a 0 and complete the following steps before you continue.

```
VMFBLD2188I Building 5735FALT $PPF
              on 191 (A) from level $PFnnnnn
```

vmfppf 5735falt *

Note: If you've created your own PPF override, use your PPF name instead of 5735FALT.

copyfile 5735falt \$ppf a = = d (olddate replace

erase 5735falt \$ppf a

Note: Do not use your own PPF name in place of 5735FALT for these COPYFILE and ERASE commands.

vmfbld ppf 5735falt {tcpip | tcpipsfs} (status setup

1

Re-issue VMFBLD to complete updating the build status table.

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories. When you receive the prompt that was previously displayed, enter a 1 to continue.

- 2 Use VMFVIEW to review the build status messages, and see what objects need to be built.

vmfview build

7.2.3.5 Build Serviced Objects

- 1 Ensure Language Environment run-time library support is available if you are applying service to functions that require this support.
- 2 Rebuild TCP/IP Feature for VM/ESA serviced parts.

vmfbld ppf 5735falt {tcpip | tcpipsfs} (serviced

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

Note - TCP/IP DES Feature Additional Build Steps

If the TCP/IP DES Feature is installed on your system **and** the CMCOPYR TEXT file has been affected by TCP/IP Feature service, you need to perform several additional steps to ensure the function provided by this feature is properly maintained.

1. Rebuild the TCP/IP DES Feature DES TXTLIB.

Note: When you issue the VMFBLD command that follows, ensure you use the TCP/IP DES Feature PPF file name (**5735falu**) and component (**kerbdes** or **kerbdessfs**), and not those for the TCP/IP Feature.

vmfbld ppf 5735falu {kerbdes | kerbdessfs} uskblides * (setup serviced

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

vmfview build

Review the build message log (\$VMFBLD \$MSGLOG), and correct any problems before going on.

2. Ensure Language Environment run-time library support is available.
3. Rebuild the Kerberos objects so they will continue to be DES-capable (these objects are listed in Figure 17 on page 70 of 6.5.4.4, "TCP/IP DES Feature for VM/ESA Run-time Files").

Note: When you issue the VMFBLD commands that follow, specify the TCP/IP Feature PPF file name (**5735falt**) and component (**tcpip** or **tcpipsfs**), and not those for the TCP/IP DES Feature.

vmfbld ppf 5735falt {tcpip | tcpipsfs} tckblc91 * (all
vmfbld ppf 5735falt {tcpip | tcpipsfs} tckblc92 * (all

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

vmfview build

Review the build message log (\$VMFBLD \$MSGLOG), and correct any problems before going on.

- 3 Review the build message log (\$VMFBLD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview build

7.2.3.6 Test the New Service

You should thoroughly test new service before you put it into production. To do this, add the links shown below for each server machine you're using, so that the server and client code test build minidisks are linked instead of their production counterparts. In so doing, you need to first detach the 591 and 592 production minidisks. The required LINK commands are:

```
LINK P735FALT 491 591 RR  
LINK P735FALT 492 592 RR
```

In addition, the NCS server virtual machine should link the test NCS administration code, if it was serviced. Again, first detach the 195 production minidisk before the following LINK command is issued.

```
LINK P735FALT 395 195 RR
```

When you test new service, you should consult any applicable documentation (for example, that provided with the APARs that comprise the service) to account for changes specific to new or changed function. Also, your testing may require TCP/IP services affected by service to be shutdown and restarted, possibly more than once.

Note: Before you shutdown any TCP/IP servers, ensure any applicable conditions or guidelines for your environment have been followed.

For information on shutting down TCP/IP servers, see "Starting and Stopping TCP/IP Services" in Chapter 6 of *TCP/IP Function Level 320 Planning and Customization*.

7.2.4 Place the New TCP/IP Feature for VM/ESA Service Into Production

7.2.4.1 Copy Serviced TCP/IP Feature Run-time Files Into Production

When the new service has been thoroughly tested, it should be copied to the production build disks to place it into production.

- 1 Shutdown TCP/IP services.

Note - Shutting Down Services

Before you shutdown any TCP/IP servers, ensure any applicable conditions or guidelines for your environment have been followed.

For information on shutting down TCP/IP servers, see “Starting and Stopping TCP/IP Services” in Chapter 6 of *TCP/IP Function Level 320 Planning and Customization*.

- 2 Log on the TCP/IP Feature service user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 3 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

4 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

b Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```

5 Access the P735FALT 491 minidisk.

```
access 491 j
```

The 491 minidisk is where the TCP2PROD EXEC resides.

6 Review the 5735FALT CATALOG file to ensure that any changes you may have made to this file remain in effect, and that any local service used to customize this file has been properly re-worked and applied.

Note: You should verify the correctness of the product run-time file section (TCPRUN) of the 5735FALT CATALOG at this time. For reference purposes, files processed using the TCPRUN section are listed in Figure 15 on page 43 of 6.2.4.6, "TCP/IP Feature for VM/ESA Product and Sample Configuration Files" on page 42.

7 (Optional) If necessary, establish a write link to any TCP/IP Feature production or server minidisks which are not yet linked in this mode.

LINK statements for the various TCP/IP Feature minidisks are present in the P735FALT directory entry that was defined as part of the VM/ESA Version 2 Release 4.0 System DDR that is already installed.

If you have changed the default installation user ID or use different minidisk addresses in your environment, you may need to manually link the necessary TCP/IP production and server minidisks. See Figure 15 on page 43 and Figure 16 on page 44 for the link addresses you should use. If you have a PPF override that has changed any of these addresses, use your values.

```
link tcpipid vdev1 vdev2 mr
```

Note: If another user already has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode, after which you need to re-issue the above LINK and ACCESS

commands. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 8 Copy serviced TCP/IP Feature files into production using the TCP2PROD command. The files copied via the following command are those identified in the TCPRUN section of the 5735FALT CATALOG file.

Verifying Your Environment

When you perform this step, you should first issue the TCP2PROD command with the **TEST** option, to verify that all resources can be accessed and that the appropriate files will be processed. See Appendix A, “The TCP2PROD Command” on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

With the **TEST** option in effect, **no files are copied into production**. Resolve any reported problems, then invoke TCP2PROD without the TEST option, as illustrated below.

tcp2prod 5735falt {tcpip | tcpipsfs} 5735falt tcprun (setup

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

7.2.4.2 Copy New TCP/IP Feature Configuration Files Into Production

Use the TCP2PROD command, as described below, to place any new IBM-supplied sample configuration files into production.

Note

When you perform this step, only *new* configuration files are copied into production. Existing (that is, customized) configuration files are *not* replaced.

Note: For step 2 below, it's assumed that the TCPCONFIG section of the 5735FALT CATALOG has been verified, as described in 6 on page 96 of 7.2.4.1, “Copy Serviced TCP/IP Feature Run-time Files Into Production” on page 95. If this is not the case, you should make any necessary changes to the TCPCONFIG section of the 5735FALT CATALOG file before you continue with the following steps.

- 1 If necessary, establish the appropriate environment, as described by steps 1 through 5, in 7.2.4.1, “Copy Serviced TCP/IP Feature Run-time Files Into Production” on page 95.

- 2 Copy serviced TCP/IP Feature configuration files into production using the TCP2PROD command. For reference purposes, existing files that can be processed using the TCPCONFIG section are listed in Figure 16 on page 44 of 6.2.4.6, “TCP/IP Feature for VM/ESA Product and Sample Configuration Files” on page 42; any new files that can be processed will be identified within a serviced 5735FALT CATALOG file.

Verifying Your Environment

When you perform this step, you should first issue the TCP2PROD command with the **TEST** option, to verify that all resources can be accessed and that the appropriate files will be processed. See Appendix A, “The TCP2PROD Command” on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

With the **TEST** option in effect, **no files are copied into production**. Resolve any reported problems, then invoke TCP2PROD without the TEST option, as illustrated below.

tcp2prod 5735falt {tcpip | tcpipsfs} 5735falt tcpconfig (setup

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

7.2.4.3 Configure the TCP/IP Feature for VM/ESA

If any of the configuration files you have previously customized have been affected by service, you should review the updated *sample* equivalents of the those files, and determine if any changes are required to your production files.

See *TCP/IP Function Level 320 Planning and Customization (SC24-5847)* for detailed explanations about how to configure the TCP/IP Feature servers. To accommodate service-related changes, you may at times need to consult APAR-specific documentation as well.

7.2.4.4 (Optional) Copy Serviced TCP/IP Client Code to the VM/ESA Product Code Disk

If you previously copied TCP/IP Feature client code to the VM/ESA product code disk, you should replace the appropriate files with their serviced counterparts. See Appendix G, “Copying TCP/IP Feature Client Code to the Y-Disk” on page 145 for additional information and instructions concerning this process.

7.2.4.5 Re-Initialize TCP/IP Services

After you have completed any necessary configuration, you need to re-initialize the appropriate TCP/IP servers.

For information on starting TCP/IP servers, see “Starting and Stopping TCP/IP Services” in Chapter 6 of *TCP/IP Function Level 320 Planning and Customization*.

You have finished servicing the TCP/IP Feature for VM/ESA.

7.3 Servicing the TCP/IP NFS Feature for VM/ESA

The TCP/IP NFS Feature for VM/ESA does not have separate service. All service for this feature is provided through the service process for the TCP/IP Feature for VM/ESA, using its PPF and components. See the 7.2, “Servicing the TCP/IP Feature for VM/ESA” on page 74 for a description of the service procedures for the TCP/IP Feature for VM/ESA.

You have finished servicing the TCP/IP NFS Feature for VM/ESA.

7.4 Servicing the TCP/IP Source Feature for VM/ESA

The TCP/IP Source Feature for VM/ESA does not have separate service. All service is provided through the service process for the TCP/IP Feature for VM/ESA, using its PPF and components. See the 7.2, “Servicing the TCP/IP Feature for VM/ESA” on page 74 for a description of the service procedures for the TCP/IP Feature for VM/ESA.

You have finished servicing the TCP/IP Source Feature for VM/ESA.

7.5 Servicing the TCP/IP DES Feature for VM/ESA

7.5.1 Important Service Notes

- Service for the TCP/IP DES Feature for VM/ESA is provided only in Corrective service (COR) format.

7.5.1.1 PPF Override Considerations

- The *ppfname* used throughout these servicing instructions is **5735FALU**, which assumes you are using the PPF supplied by IBM for TCP/IP DES Feature for VM/ESA. If you have your own PPF override file for TCP/IP DES Feature for VM/ESA, you should use your file's *ppfname* instead of **5735FALU**. The *ppfname* you use should be used **throughout** the rest of this procedure.

7.5.1.2 Language Environment Run-time Library Considerations

- IBM Language Environment for MVS and VM Release 8 (5688-198), or the equivalent Language Environment run-time library support, is required to service TCP/IP DES Feature for VM/ESA modules. If the Language Environment run-time library does not reside on a system minidisk automatically accessed by VMSES/E (such as the MAINT 19E minidisk), you need to ensure the appropriate minidisk is available (perhaps through the use of a PPF override).

7.5.2 Corrective (COR) Service for the TCP/IP DES Feature for VM/ESA

Corrective service for the TCP/IP DES Feature for VM/ESA is provided in COR format via tape or electronic envelope. It is installed using VMFREC, VMFAPPLY, and VMFBLD.

Electronic Service (Envelope File)

If you have received service electronically or on CD-ROM, follow the appropriate instructions to retrieve and decompact the envelope files to your A-disk. Decompression is currently done by using the DETERSE module, which will produce decompacted files with the following file name formats:

- VLST*num*, for the documentation envelope
- VPTF*num*, for the service envelope.

The file type for both of these files is (and must be) SERVLINK. You will need to supply these file names with the VMFREC commands that follow.

7.5.2.1 Prepare to Receive Service

- 1 Log on the TCP/IP DES Feature service user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2** Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 3** If necessary, establish the appropriate access to the VMSES/E minidisks.

- a** Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

- b** Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```

- 4** Have the TCP/IP DES Feature for VM/ESA corrective (COR) service tape mounted and attached as 181 to **P735FALT**.

- 5** Establish the correct minidisk access order.

vmfsetup 5735falu {kerbdes | kerbdessfs}

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

- 6 Receive the documentation. VMFREC, with the INFO option, loads the documentation and displays a list of all the products on the tape.

a If receiving service from **tape**, issue:

vmfrec info

This command will load the service memo to the 191 disk.

b If receiving service from an **envelope** file, issue:

vmfrec info (env vlstnum

This command will load the service memo to the 191 disk.

- 7 Review the receive message log (\$VMFREC \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview receive

Also make note of which products and components have service on the tape. To do this, use the PF5 key to show all status messages which identify the products on the tape.

- 8 Clear the alternate APPLY disk to ensure that you have a clean disk for new service.

**vmfmrdsn 5735falu {kerbdes | kerbdessfs}
apply**

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

This command copies the alternate APPLY disk to the production APPLY disk and then clears the alternate APPLY disk.

- 9 Review the merge message log (\$VMFMRD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview mrd

7.5.2.2 Receive the Service

1 Receive the service.

a If receiving service from **tape**, issue:

vmfrec ppf 5735falu {kerbdes | kerbdessfs}

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

This command receives service from your service tape. All new service is loaded to the DELTA disk.

b If receiving service from an **envelope** file, issue:

vmfrec ppf 5735falu {kerbdes | kerbdessfs} (env vptfnum

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

This command receives service from your service envelope. All new service is loaded to the DELTA disk.

2 Review the receive message log (\$VMFREC \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview receive

7.5.2.3 Apply the Service

1 Apply the new service.

vmfapply ppf 5735falu {kerbdes | kerbdessfs}

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

This command applies the service that you just received. The version vector table (VVT) is updated with all serviced parts and all necessary AUX files are generated on the alternate apply disk.

2 Review the apply message log (\$VMFAPP \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview apply

Note - Local Modifications

If you receive message VMFAPP2120W, you need to re-apply any local modifications before building the new TCP/IP DES Feature for VM/ESA. Refer to chapter 7 in the *VM/ESA Service Guide*. Follow the steps that are applicable to your local modification.

The following substitutions may need to be made:

- **esalcl** should be: **5735falu**
- **esa** should be: **5735falu**
- *compname* should be: **kerbdes** or **kerbdessfs**
- *appid* should be: **5735falu**
- *fm-local* should be the file mode of the 2C4 minidisk
- *fm-applyalt* should be the file mode of the 4A6 minidisk

Keep in mind that when you get to the following step in the *VM/ESA Service Guide*:

- “Rebuilding Objects”

you should return to using this program directory and continue with 7.5.2.4, “Update the Build Status Table” on page 107.

7.5.2.4 Update the Build Status Table

- 1 Update the Build Status Table with serviced parts.

vmfbld ppf 5735falu {kerbdes | kerbdessfs} (status

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

This command updates the Build Status Table to include objects that have to be built due to the new service just applied.

Note - \$PPF Service

If a \$PPF file has been serviced you will get the following prompt:

```
VMFBLD2185R The following source product parameter files have been
serviced:
VMFBLD2185R 5735FALU $PPF
VMFBLD2185R When source product parameter files are serviced, all
product parameter files built from them must be recompiled
using VMFPPF before VMFBLD can be run.
VMFBLD2185R Enter zero (0) to have the serviced source product
parameter files built to your A-disk and exit VMFBLD so
you can recompile your product parameter files with VMFPPF.
VMFBLD2185R Enter one (1) to continue only if you have already
recompiled your product parameter files with VMFPPF.
```

0

Enter a 0 and complete the following steps before you continue.

```
VMFBLD2188I Building 5735FALU $PPF
on 191 (A) from level $PFnnnnn
```

vmfppf 5735falu *

Note: If you've created your own PPF override, use your PPF name instead of 5735FALU.

copyfile 5735falu \$ppf a = d (olddate replace

erase 5735falu \$ppf a

Note: **Do not** use your own PPF name in place of 5735FALU for these COPYFILE and ERASE commands.

vmfbld ppf 5735falu {kerbdes | kerbdessfs} (status

1

Re-issue VMFBLD to complete updating the build status table.

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

When you receive the prompt that was previously displayed, enter a 1 to continue.

- 2 Use VMFVIEW to review the build status messages, and see what objects need to be built.

vmfview build

7.5.2.5 Build Serviced Objects

- 1 Ensure Language Environment run-time library support is available.
- 2 Rebuild TCP/IP DES Feature for VM/ESA serviced parts.

vmfbld ppf 5735falu {kerbdes | kerbdessfs} (serviced

Use **kerbdes** if the TCP/IP Feature default minidisk environment has been maintained; use **kerbdessfs** if the service minidisks were moved to Shared File System directories.

- 3 Review the build message log (\$VMFBLD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview build

- 4 Rebuild the Kerberos objects listed in Figure 17 on page 70 of 6.5.4.4, "TCP/IP DES Feature for VM/ESA Run-time Files," so that they will continue to be DES-capable.

Note: When you issue the VMFBLD commands that follow, specify the TCP/IP Feature PPF file name (**5735falt**) and component (tcpip or tcpipsfs), and not those for the TCP/IP DES Feature.

vmfbld ppf 5735falt {tcpip | tcpipsfs} tckblc91 * (all
vmfbld ppf 5735falt {tcpip | tcpipsfs} tckblc92 * (all

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

vmfview build

Review the build message log (\$VMFBLD \$MSGLOG), and correct any problems before going on.

- 5 Review the build message log (\$VMFBLD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *VM/ESA System Messages and Codes* or use on-line HELP.

vmfview build

7.5.2.6 Test the New Service

You should thoroughly test new service before you put it into production. To do this, add the links shown below to the VMKERB and ADMSERV server machines, so that the server and client code test build minidisks are linked instead of their production counterparts. In so doing, you need to first detach the 591 and 592 production minidisks. The required LINK commands are:

```
LINK P735FALT 491 591 RR
LINK P735FALT 492 592 RR
```

When you test new service, you should consult any applicable documentation (for example, that provided with the APARs that comprise the service) to account for changes specific to new or changed function. Also, your testing may require TCP/IP services affected by service to be shutdown and restarted, possibly more than once.

Note: Before you shutdown any TCP/IP servers, ensure any applicable conditions or guidelines for your environment have been followed.

For information on shutting down TCP/IP servers, see “Starting and Stopping TCP/IP Services” in Chapter 6 of *TCP/IP Function Level 320 Planning and Customization*.

7.5.3 Place the New TCP/IP DES Feature for VM/ESA Service Into Production

7.5.3.1 Copy the Serviced TCP/IP DES Feature Files Into Production

When the new service has been thoroughly tested, it should be copied to the production build disks to place it into production.

- 1 Shutdown the appropriate TCP/IP servers. In this case, these are the VMKERB and ADMSERV service virtual machines.

Note - Shutting Down Services

Before you shutdown any TCP/IP servers, ensure any applicable conditions or guidelines for your environment have been followed.

For information on shutting down TCP/IP servers, see “Starting and Stopping TCP/IP Services” in Chapter 6 of *TCP/IP Function Level 320 Planning and Customization*.

2 Log on the TCP/IP DES Feature service user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

3 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

4 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

link MAINT 5e5 5e5 rr
access 5e5 b

b Establish write access to the Software Inventory minidisk.

link maint 51d 51d mr
access 51d d

5 Access the P735FALT 491 minidisk.

access 491 j

The 491 minidisk is where the TCP2PROD EXEC resides.

- 6 Review the 5735FALU CATALOG file to ensure any changes you made to this file remain in effect, and that any local service used to customize this file has been properly applied.

Note: You should verify the correctness of the product run-time file section (KERBRUN) of the 5735FALU CATALOG. For reference purposes, files processed using the KERBRUN section are listed in Figure 17 on page 70 of 6.5.4.4, "TCP/IP DES Feature for VM/ESA Run-time Files."

- 7 (Optional) If necessary, establish a write link to any TCP/IP Feature production or server minidisks which are not yet linked in this mode.

LINK statements for the various TCP/IP Feature minidisks are present in the P735FALT directory entry that was defined as part of the VM/ESA Version 2 Release 4.0 System DDR that is already installed.

If you have changed the default installation user ID or use different minidisk addresses in your environment, you may need to manually link the necessary TCP/IP production and server minidisks. See Figure 15 on page 43 and Figure 16 on page 44 for the link addresses you should use. If you have a PPF override that has changed any of these addresses, use your values.

link *tcpipid vdev1 vdev2 mr*

Note: If another user already has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode, after which you need to re-issue the above LINK and ACCESS commands. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 8 Modify the VMSES PARTCAT entry for the DES TXTLIB object so that it can be copied into production.

vmfsim modify vmstes partcat *fm-492 tdata :partid des txtlib :prodid 5735falt%tcpip (replace*

where fm-492 is the file mode of the TCPMAINT 492 minidisk.

- 9 Copy serviced TCP/IP DES Feature files into production using the TCP2PROD command. The files copied via the following command are those identified in the KERBRUN section of the 5735FALU CATALOG file.

Verifying Your Environment

When you perform this step, you should first issue the TCP2PROD command with the **TEST** option, to verify that all resources can be accessed and that the appropriate files will be processed. See Appendix A, “The TCP2PROD Command” on page 115 for information about the TCP2PROD command and TCP/IP Feature catalog files.

With the **TEST** option in effect, **no files are copied into production**. Resolve any reported problems, then invoke TCP2PROD without the TEST option, as illustrated below.

tcp2prod 5735falt {tcpip | tcpipsfs} 5735falu kerbrun (setup

Use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service minidisks were moved to Shared File System directories.

7.5.3.2 Configure the TCP/IP DES Feature for VM/ESA

There are no customizable configuration files which are unique to the TCP/IP DES. See *TCP/IP Function Level 320 Planning and Customization (SC24-5847)* for detailed information about how to configure the DES-capable Kerberos functions for your environment.

7.5.3.3 (Optional) Copy Serviced DES-capable Client Code to the VM/ESA Product Code Disk

If you previously copied TCP/IP DES Feature client code to the VM/ESA product code disk, you should replace the appropriate files with their serviced counterparts. See Appendix G, “Copying TCP/IP Feature Client Code to the Y-Disk” on page 145 for additional information and instructions concerning this process.

7.5.3.4 Re-Initialize DES-capable TCP/IP Services

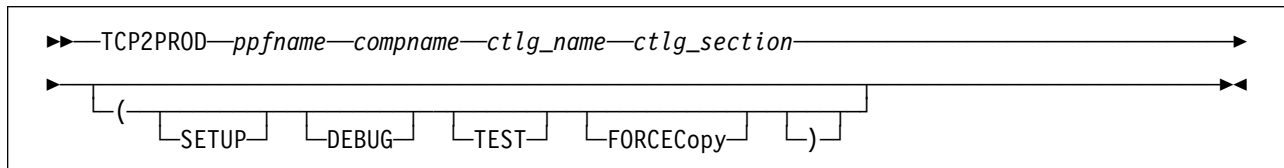
After you have completed any necessary configuration, you need to re-initialize the appropriate TCP/IP servers. In this case, these are the VMKERB and ADMSERV virtual machines.

For information on starting TCP/IP servers, see “Starting and Stopping TCP/IP Services” in Chapter 6 of *TCP/IP Function Level 320 Planning and Customization*.

You have finished servicing the TCP/IP DES Feature for VM/ESA.

Appendix A. The TCP2PROD Command

A.1 TCP2PROD



A.1.1 Purpose

Use the TCP2PROD command to help you place TCP/IP Feature for VM/ESA files into production. The TCP2PROD command uses a TCP/IP Feature CATALOG file to determine which product files are to be placed into production, as well as which minidisks and SFS directories are to be used.

Note: The TCP2PROD command is intended for use by the P735FALT user ID, and should only be used when you install or service the TCP/IP Feature and its features.

A.1.2 Operands

ppfname is the name of the usable form product parameter file to be used for this purpose. The file type must be PPF.

compname is the name of the component as specified on the :COMPNAME. tag in the product parameter file; *compname* is a 1- to 16-character alphanumeric identifier.

The PPF Variable Declarations (:DCL.) section defined for *compname* determines from which source minidisks and SFS directories product files are copied; likewise for the target minidisks to which these files are copied.

ctlg_name is the name of the product catalog file to be processed. The file type must be CATALOG.

ctlg_section is the section of the catalog file to be processed. The value specified by *ctlg_section* is used as a “root” for the *begin* and *end* tags that define each section of grouped records within a catalog file.

TCP2PROD

A.1.3 Options

SETUP

causes a VMSES/E VMFSETUP command to be issued as part of TCP2PROD processing, so that the correct environment will be established. The *ppfname* and *compname* supplied when TCP2PROD is invoked are used as parameters for the VMFSETUP command.

TEST

causes processing to be performed so that no files are placed into production via the VMSES/E VMFCOPY command. This option allows you to verify that minidisks and SFS directories can be accessed as required, and that the appropriate catalog file records will be processed. Additional messages are issued in some cases to clarify what processing would be performed if the TEST option was not used.

DEBUG

causes additional messages to be issued to provide information for debugging purposes.

FORCECopy

causes files identified within a CATALOG *configuration* section to be copied to their configured name and type, regardless of whether such a configuration file already exists.

A.1.4 Usage Notes

- **TCP2PROD does not issue LINK commands** for minidisks as part of its processing.
If necessary, the appropriate LINK statements should be added to the P735FALT directory entry. Alternatively, the required LINK commands can be added to the PROFILE EXEC of the P735FALT user ID.
- The first CATALOG file found in the CMS search order that matches the name specified by *ctlg_name* is used.
- CATALOG file records which are found to be unusable are bypassed. Warning messages are issued when records are bypassed for this reason.
- The minidisk or directory accessed as file mode A must be read/write.
- By default, a file identified within a *configuration* section of a CATALOG file is copied to its configured name and type only if the configured file does not already exist. A section is considered to be a *configuration* section if its corresponding *begin* tag contains the string, **CONFIG**. For more information about CATALOG file structure and content, see A.2, "TCP/IP for VM CATALOG Files" on page 118. If TCP2PROD is invoked with *ppfname* specified as a question mark (?), the command syntax is displayed.

A.1.5 The TCP2PROD \$MSGLOG

Informational, warning and error messages issued to the console by TCP2PROD are maintained in a message log, TCP2PROD \$MSGLOG. This message log is written to the minidisk or directory accessed as file mode A.

The TCP2PROD \$MSGLOG is cumulative. The most recent entries are appended at the **bottom** of the file. Separator lines and date and time stamps are inserted in the log with each TCP2PROD invocation so that earlier log entries can be distinguished from new entries.

No messages are logged until initial validation of the TCP2PROD command is complete.

Note - Message Log Format

The TCP2PROD \$MSGLOG does not have the same format as the VMSES/E \$VMFxxx \$MSGLOG files, so the VMFVIEW EXEC should not be used to browse this file. Use XEDIT to view the content of the TCP2PROD \$MSGLOG.

A.1.6 Return Codes

The possible return codes produced by TCP2PROD are indicated below.

0

Explanation: Successful execution. No processing errors were encountered.

1

Explanation: Incorrect invocation. TCP2PROD was invoked with an incorrect number of parameters. A message indicating the missing parameter is displayed, in addition to the command syntax.

2

Explanation: Internal error. If return code 2 is returned, processing status is unknown. You should contact the TCP/IP Feature support group for problem determination and assistance.

4

Explanation: Errors encountered with warnings issued. The errors encountered may have caused processing to complete with only partial success. Review the TCP2PROD \$MSGLOG for warning messages which indicate any problems that were encountered.

Explanation: Errors encountered. Processing has not completed successfully. Review the TCP2PROD \$MSGLOG for messages regarding the problems encountered.

A.2 TCP/IP for VM CATALOG Files

A.2.1 Purpose

The TCP/IP Feature CATALOG files are used by TCP2PROD to determine which TCP/IP Feature product files are to be placed into production, as well as which minidisks and SFS directories are to be used for this process.

The CATALOG files provided for use with the TCP/IP Feature for VM/ESA are listed in Figure 18.

Figure 18. TCP/IP Feature for VM/ESA CATALOG Files	
Catalog File	Corresponding TCP/IP Feature
5735FALT CATALOG	TCP/IP Feature
5735FALU CATALOG	TCP/IP DES

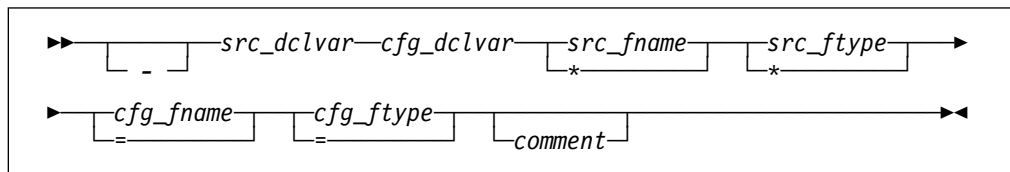
Distinct sections within the catalog are used for *product* files, such as the TCPIP MODULE, and *sample* files which need to be customized, such as the TCPIP SDATA file. Each section is defined by a pair of *begin* and *end* tags. For example, the section for the TCP/IP Feature sample configuration files is defined using the :TCPCONFIG. and :ETPCONFIG. tags.

The entries within each section provide information sufficient for TCP2PROD to process a group of files associated with a given TCP/IP feature.

Unless marked otherwise, all records within a given section will be processed, and the corresponding files placed into production via the VMSES/E VMFCOPY command.

A.2.2 CATALOG Record Syntax

The syntax for TCP/IP Feature CATALOG file records is indicated below.



A.2.3 Operands

-	is the record bypass character, a hyphen (-). Use this bypass character at the beginning of record to indicate that this record (or file) should not be processed by TCP2PROD.
	Note: It's recommended that all file entries remain present within the CATALOG files. If a TCP/IP Feature file is not used in your environment, its corresponding entry should be bypassed as described above. Doing so will also help readily distinguish records corresponding to TCP/IP Feature product files from comment lines.
<i>src_dclvar</i>	is a PPF :DCL. variable name for the minidisk or SFS directory where the source file resides.
<i>cfg_dclvar</i>	is a PPF :DCL. variable name for the minidisk or SFS directory where the configured file is to reside.
<i>src_fname</i>	is the source file name. An asterisk (*) can be used to indicate that all files of the type specified by <i>src_ftype</i> are to be processed. When the * wildcard is used, the configured file name remains unchanged from the source file name.
<i>src_ftype</i>	is the source file type. An asterisk (*) can be used to indicate that all files of the name specified by <i>src_fname</i> are to be processed. When the * wildcard is used, the configured file type remains unchanged from the source file type.
<i>cfg_fname</i>	is the configured file name. If the source file name is specified using an asterisk (*), <i>cfg_fname</i> must be specified to maintain the correct record format. In such cases, an equals sign (=) should be used. Note that a value other than "=" will be processed as if the equals sign was specified.
<i>cfg_ftype</i>	is the configured file type. If the source file type is specified using an asterisk (*), <i>cfg_ftype</i> must be specified to maintain the correct record format. In such cases, an equals sign (=) should be used. Note that a value other than "=" will be processed as if the equals sign was specified.
<i>comment</i>	is commentary text, which is ignored by TCP2PROD during processing.

Notes:

1. All parameters must be separated by at least one space.
2. Comment lines may be included in CATALOG files. Comment lines must begin with an asterisk (*); these lines are ignored during TCP2PROD processing.

TCP/IP for VM CATALOG Files

A.2.4 Usage Notes

- If you modify a TCP/IP Feature CATALOG file, changes should be made via a VMSES/E local modification, so that any service-related changes can be reported during the VMSES/E service process. See Appendix B, “Modifying TCP/IP Feature CATALOG Files” on page 121 for more information about how to change the TCP/IP Feature CATALOG files in this manner.
- The source and target minidisk/directory variable names used within this file correspond to those used in the applicable TCP/IP feature PPF file (or an override variation of that file). If any changes are made to the Variable Declarations (:DCL.) section of a TCP/IP Feature PPF file via a PPF override, you may need to incorporate similar changes within the CATALOG files (through a separate local modification), so that PPF :DCL. variable names are correctly resolved.

Appendix B. Modifying TCP/IP Feature CATALOG Files

This appendix describes how to create a VMSES/E local modification for TCP/IP Feature base or feature CATALOG files, which are provided as replacement-maintained (or, “full-source”) objects. This procedure can also be used to modify other replacement-maintained TCP/IP Feature files, such as sample files.

The example provided in this appendix describes how to modify the 5735FALT CATALOG file, so that NCS-related files will not be processed by the TCP2PROD EXEC.

For more information about installing and maintaining local modifications, see Chapters 5, 6, and 7 of the *VM/ESA Service Guide* (GC24-5838).

Notes:

1. Throughout this procedure, references are made to several TCP/IP Feature installation minidisks. Default addresses, and equivalent SFS directories (when applicable), for these minidisks are listed in the tables in 5.3, “DASD Storage and User ID Requirements” on page 21.
2. VMSES/E local modifications require a modification identifier, or *modid*, to be associated with the parts affected by a change; *modid* is a locally-determined value. It should begin with **L**, and is followed by up to 4 alphanumeric characters that identify a specific local modification. For example, L0001.

1 Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

2 Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

3 If necessary, establish the appropriate access to the VMSES/E minidisks.

a Establish read access to the VMSES/E code minidisk.

link MAINT 5e5 5e5 rr
access 5e5 b

b Establish write access to the Software Inventory minidisk.

link maint 51d 51d mr
access 51d d

4 Create a usable PPF file.

Note: This VMFPPF step is necessary **only** if you have made changes to the PPF file since it was last compiled.

vmfppf *ppfname compname*

where:

- *ppfname* is the name of a PPF file that corresponds to the configuration file to be modified. For example, **5735falt**. If you have created an override PPF file, use your override file name.
- *compname* is the feature component name with which the configuration file is associated. For example, for the TCP/IP Feature (5735FALT), you would use either: **tcpip** or **tcpipsfs**

5 Establish the correct minidisk access order.

vmfsetup *ppfname compname*

ppfname and *compname* are the same as described in step 4.

- 6 Copy the highest level of the file to be modified to the local modification (LOCALMOD) minidisk, with the correct file type for the replacement part.

vmfrepl *fn ft ppfname compname (\$select logmod modid outmode localmod*

where:

- *fn* and *ft* are the real file name and file type of the file being modified. For example:
5735FALT CATALOG
- *ppfname* and *compname* are the same as described in step 4 on page 122.
- *modid* is the local modification identifier for this part. (*modid* is described in note 2 on page 121).
- **localmod** is the symbolic name for the local modification disk in the :MDA. section of the 5735FALT PPF file.

- 7 XEDIT the part just copied to the LOCALMOD disk, so you can make (and then file) your changes.

xedit *fn ftabbrv-modid fm-local*

The file ID (*fn ftabbrv-modid fm-local*) was returned in message VMFREP2507I. For example:
5735FALT CATL0001 E

8 Make your changes to the displayed file.

For example, assume you've chosen to not use the NCS interfaces provided with TCP/IP Feature, so have not defined the NCS, NCSLLBD, and NCSGLBD servers. To avoid TCP2PROD processing of the files associated with these servers, you need to bypass the 5735FALT CATALOG file entries that follow, as shown below:

```
:TCPRUN.  
...  
- &BLD7Z &DISK13 * * = = NCS 195 (Admin)  
...  
- &BLD1Z &DISK12 NCSPRO EXEC PROFILE EXEC NCS  
- &BLD3Z &DISK12 NCSSOCK1 H SOCKET H NCS  
- &BLD3Z &DISK12 NCSRPC H RPC H NCS  
- &BLD3Z &DISK12 NCSUTIL C UTIL C NCS  
- &BLD1Z &DISK14 TCPROFIL EXEC PROFILE EXEC NCSLLBD  
- &BLD1Z &DISK15 TCPROFIL EXEC PROFILE EXEC NCSGLBD  
...  
:ETCPRUN.  
...  
...
```

9 When you have completed your changes, save the replacement part.

====> file

10 Rebuild the Modified Objects

Note

When you have completed steps 6 through 9 for all of the local modifications necessary for this component, then rebuild these objects.

Build the modified (or, serviced) configuration file(s).

vmfbld ppf ppfname compname (serviced

Appendix C. Making Local Modifications to TCP/IP Feature Modules

This appendix provides information to assist you in making local modifications to TCP/IP Feature for VM/ESA modules, and is intended to supplement the local modification process described in Chapter 6, “Procedures for Local Service” of the *VM/ESA Service Guide* (GC24-5838). The process described herein is oriented toward local service that is implemented through:

- TEXT file **replacement** — when an existing TCP/IP TEXT file is fully replaced and the file name of the existing TEXT file remains unchanged
- **local updates** to the source for an existing TEXT file (so that a “local replacement” is effectively created)
- TEXT file **substitution** or **addition**, in which an existing TCP/IP TEXT file is fully replaced by one or more new, differently-named TEXT files.

With regard to the latter two types of modification, additional steps to accommodate changes to TCP/IP C and Pascal-based modules or added TEXT files are provided.

When to Use This Information

In general, the VMSES/E local modification process as documented in Chapter 6, “Procedures for Local Service” of the *VM/ESA Service Guide* should be used when local modifications are made. *This is especially true* for **common** part types — such as EXEC and ASSEMBLE files — for which VMSES/E itself provides appropriate part handlers.

However, C or Pascal-specific VMSES/E part handlers are not available for TCP/IP **C** and **Pascal** source parts, so local modifications to TCP/IP Feature modules based on these languages cannot be processed completely within the VMSES/E environment. Instead, the VMFC and VMFPAS execs provided with the TCP/IP Feature can be used to facilitate local modifications to its C and Pascal-based modules. Additional steps which make use of these execs, are included in this appendix to help you modify TCP/IP C or Pascal-based objects.

Information about the VMFC and VMFPAS execs can be found in Chapter 31, “Using Source Code Libraries,” of *TCP/IP Function Level 320 Planning and Customization* (SC24-5847).

Note that VMFC and VMFPAS are **not** “VMSES/E-compliant” part handlers. They do not process source files in the same manner as VMSES/E part handlers (for example, by using VMFEXUPD); nor do they produce object (TEXT) files that comply with VMSES/E maintenance naming conventions (such as file abbreviations and part numbering). Therefore, several manual steps are required to ensure the TEXT files produced by VMFC and VMFPAS can be used as part of the VMSES/E maintenance process.

For detailed information about installing and maintaining local modifications, see Chapters 5, 6, and 7 of the *VM/ESA Service Guide*.

Notes:

1. Throughout this procedure, references are made to several TCP/IP Feature installation minidisks. Default addresses, and equivalent SFS directories (when applicable), for these minidisks are listed in the tables in 5.3, "DASD Storage and User ID Requirements" on page 21.
2. VMSES/E local modifications require a modification identifier, or *modid*, to be associated with the parts affected by a change; *modid* is a locally-determined value. It should begin with **L**, and is followed by up to 4 alphanumeric characters that identify a specific local modification. For example: L0002

C.1.1 Prepare for Local Service

- 1** Log on the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2** Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 3** If necessary, establish the appropriate access to the VMSES/E minidisks.

- a** Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

- b** Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```


4 Create a usable PPF file.

Note: This VMFPPF step is necessary **only** if you have made changes to the PPF file since it was last compiled.

vmfppf *ppfname compname*

where:

- *ppfname* is the name of a PPF file that corresponds to the source file to be modified. For example, **5735falt**. If you have created an override for the PPF file in question, use your override file name.
- *compname* is the feature component name with which the source file is associated. For example, for the TCP/IP Feature (5735FALT), you would use either: **tcpip** or **tcpipsfs**

5 Establish the correct minidisk access order.

vmfsetup *ppfname compname*

where *ppfname* and *compname* are the same as described in step 4.

6 Access the TCP/IP Feature Source minidisk (or SFS directory).

access 2b3 *fm*

where *fm* is an available file mode, perhaps "C."

C.1.2 Receive the Local Service

C.1.2.1 Create the Replacement TEXT File

Create the replacement TEXT file (or, "text deck"). How you perform this step depends on the nature of the TEXT file itself.

- If your modification is comprised of a **replacement** TEXT file, you need only to copy this file to an appropriately named file which VMSES/E can then use.
- If your modification is comprised of a **new** (additional) TEXT file, you need to copy this file to an appropriately named file and update the build list that corresponds to the module affected by your changes.

If either of the above cases are applicable, skip the steps provided for "C and Pascal Source Modifications," and create the required *TXTmodid* file, as described in C.1.2.5, "Copy the TEXT File for Use by VMSES/E" on page 130.

- If your modification requires updates to a C or Pascal source file, continue with the steps provided for “C and Pascal Source Modifications.”

C and Pascal Source Modifications

C.1.2.2 Add an Update Record to the AUX File

- 1 Update or create the AUX file for the part being modified (*fn* AUXLCL) and add an entry for the update file; the default AUX file type is “AUXLCL.”

Note: Perform this step for each source file you need to modify.

```
xedit fn auxlcl fm-local (noprof
====> input update-ft svclvl lcmovid comment
====> file
```

where:

- *fn* is the file name of the source-maintained part being modified.
- *fm-local* is the file mode of the TCP/IP Feature local modification (LOCALMOD) disk.
- *update-ft* is the file type of the update file that contains your local modifications.
- *svclvl* is a service level indicator; by convention, the string “LCL” is most often used for local modifications.
- *modid* is the local modification number (as described in Note 2 on page 126). For example: L0002
- *lcmovid* is the string “LC” concatenated with *modid*; for example: LCL0002

C.1.2.3 Create the Update File for the Part

- 1 Xedit the source file (*fn* C or *fn* PASCAL) with the **CTL** option.

Note: Perform this step for each source file you need to modify.

```
xedit fn ft-src fm-src (ctl tcpip
```

where:

- *fn ft-src fm-src* are the file name, file type and file mode of the source file you are modifying.
- **tcpip** is the name of the TCP/IP control file.

- 2** Make your changes to the displayed source file. The original source file is *not* changed.
- 3** When you have completed your changes, save them on the TCP/IP Feature local modification (LOCALMOD) disk. When you enter the FILE command in XEDIT, all of your changes are placed in the update file (*fn update-ft*).

====> file = = *fm-local*

where *fm-local* is the file mode of the TCP/IP Feature local modification (LOCALMOD) disk.

C.1.2.4 Create an Updated Replacement TEXT File

- 1** Compile the source to include your updates. Use the VMFC EXEC to compile C source files; use the VMFPAS EXEC to compile PASCAL source files. For more information about the VMFC and VMFPAS execs, see Chapter 31, "Using Source Code Libraries," of *TCP/IP Function Level 320 Planning and Customization (SC24-5847)*.

Note: Perform this step for each source file you have modified.

- a** To compile **C**-based source files, issue:

vmfc *fn tcpip* (*options*

OR

- b** To compile **Pascal**-based source files, issue:

vmfpas *fn tcpip* (*options*

where:

- *fn* is the name of the source file to be compiled.
- **tcpip** is the name of the TCP/IP control file.
- *options* are C or PASCAL compiler options required for your environment.

After successful completion of the VMFC (or VMFPAS) EXEC, a text file (*fn* TXTLCL A) incorporating your local modifications will exist.

Note: If you choose to use a different compilation method instead of using the VMFC or VMFPAS execs provided with the TCP/IP Feature, the resulting TEXT file may be named differently than “*fn* TXTLCL.”

End of C and Pascal Source Modifications

C.1.2.5 Copy the TEXT File for Use by VMSES/E

Copy the replacement or new TEXT file (or, “text deck”) to the TCP/IP Feature local modification (LOCALMOD) disk, with the correct file type for the replacement part.

Note: Perform this step for each TEXT file affected by your modifications.

vmfrepl *fn text ppfname compname fn ft-txt fm-txt* (\$select **logmod modid outmode localmod ftabbr txt**

where:

- *fn* is the file name of the TEXT file in question.
- *ppfname* and *compname* are the same as described in step 4 on page 127.
- *fn ft-txt fm-txt* are the file name, file type and file mode of the TEXT file in question.
- *modid* is the local modification number (as described in Note 2 on page 126). For example: L0002
- **localmod** is the symbolic name for the local modification disk in the :MDA. section of the 5735FALT PPF file.

C.1.3 (Optional) Modify the Build List for Added TEXT Files

If your local modifications do not require the addition of a new TEXT file, skip the steps provided in “Additional Steps for Adding a New TEXT File,” and continue with the steps provided in C.1.4, “Rebuild the Modified Objects” on page 133.

If your local modifications are implemented within a unique TEXT file (that is, one not supplied by IBM as part of the TCP/IP Feature) you need to perform additional steps for this TEXT file to be incorporated by the affected TCP/IP module. These steps, provided in “Additional Steps for Adding a New TEXT File,” implement build list changes that will accommodate the new TEXT file; they would also be required

if you find it necessary to replace an IBM-supplied TEXT file with one of a different name.

Additional Steps for Adding a New TEXT File

C.1.3.1 Add an Update Record to the Build List AUX File

1 Update or create the build list AUX file (*fn-blst* AUXLCL) and add an entry for the update file; the default file AUX file type is “AUXLCL.”

A complete list of TCP/IP feature build lists is provided in Appendix E, “TCP/IP Feature Build Lists” on page 137.

```
xedit fn-blst auxlcl fm-local (noprof
====> input update-ft svclvl lcmmodid comment
====> file
```

where:

- *fn-blst* is the file name of the build list used to build the affected module (that is, the build list to which the new TEXT file must be added).
- *fm-local* is the file mode of the TCP/IP Feature local modification (LOCALMOD) disk.
- *update-ft* is the file type of the update file that contains your local modifications.
- *svclvl* is a service level indicator; by convention, the string “LCL” is most often used for local modifications.
- *modid* is the local modification number (as described in Note 2 on page 126). For example: L0002
- *lcm**modid* is the string “LC” concatenated with *modid*; for example: LCL0002

C.1.3.2 Create the Update File for the Build List

1 Xedit the build list source file with the **CTL** option.

```
xedit fn-blst $exec fm-src (ctl tcpip
```

where:

- *fn-blst* and *fm-src* are the file name and file mode of the build list file you are modifying.
- **\$exec** is the file type of the build list.
- **tcpip** is the name of the TCP/IP control file.

- 2 Make your changes to the displayed source file. The original source file is *not* changed.

Locate the :OBJNAME. tag associated with the name of the module that will include your text file. For example, TCPIP.MODULE. Add a new :PARTID. tag record after the last :PARTID. tag for this object (TCPIP.MODULE), and before its :EOBJNAME. tag.

The new :PARTID. tag should define the file name of the text file you're adding, followed its file type abbreviation, TXT. Use only a single space to separate the tag, the text file name, and the TXT abbreviation, as follows

```
:PARTID. newtxtfn TXT
```

In the example that follows, the TCPBLM91 build list is to be updated to add TEXT files to the TCPIP module. To do this, line 176 is copied (or duplicated); then, in the newly created line(s), the string "TCOFFPR" is changed to the name of the added TEXT file(s).

```
TCPBLM91 EXCnnnnn I2 V 80 Trunc=80 Size=265 Line=178 Col=1 Alt=nn
====>
00087 :EOBJNAME.
00088 *
00089 :OBJNAME. TCPIP.MODULE AMODE 31 FROM TCPIP NOMAP
00090 :BLDREQ. TCPBLCOM.BLDLIST TCPBL492.TCPASCAL.TXTLIB TCPBL492.TCPLAN
00091 TCPBL492.TCPXXA.TXTLIB
00092 :GLOBAL. TXTLIB COMMTXT TCPXXA TCPASCAL TCPLANG
00093 :OPTIONS. CLEAR NOAUTO RLDSAVE NOLIBE NOUNDEF RMODE 24
00094 :PARTID. TCPIP TXT
00095 ----- 80 line(s) not displayed -----
00175 :OPTIONS. LIBE UNDEF RESET VSPASCAL
00176 :PARTID. TCOFFPR TXT
00177 :EOBJNAME.
00178 *
```

- 3 When you have completed your changes, save them on the TCP/IP Feature local modification (LOCALMOD) disk. When you enter the FILE command in XEDIT, all of your changes are placed in the update file (*fn-blst update-ft*).

```
====> file = = fm-local
```

where *fm-local* is the file mode of the TCP/IP Feature local modification (LOCALMOD) disk.

C.1.3.3 Create the Updated Replacement Build List

- 1 Create a replacement part from the build list \$EXEC (source) file. To do this, update the build list file with the VMFEXUPD command.

```
vmfexupd fn-blst exec ppfname compname (outmode localmod $select logmod
```

where:

- *fn-blst* is the file name of the build list being updated. For example, TCPBLM91
- *ppfname* and *compname* are the same as described in step 4 on page 127.

The VMFEXUPD command records the update for the build list in the local version vector table (VVTLCCL), adds the update to the \$SELECT file, and creates the replacement part (*fn-blst* EXEC).

End of Additional Steps for Adding a New TEXT File

C.1.4 Rebuild the Modified Objects

Note

When you have completed the steps described in C.1.2, “Receive the Local Service” through C.1.2.5, “Copy the TEXT File for Use by VMSES/E” (or C.1.3.3, “Create the Updated Replacement Build List”) for all of the local modifications necessary for this component, then rebuild the modified objects.

In general, your modification is likely to require other steps associated with the service process to be completed (such as updating the build status table, re-building serviced objects, testing service, and copying the service into production). To complete the service process, continue with one of the steps listed, as appropriate:

- 7.2.2.4, “Update the Build Status Table” on page 80, to complete TCP/IP Feature RSU service
- 7.2.3.4, “Update the Build Status Table” on page 90, to complete TCP/IP Feature COR service
- 7.5.2.4, “Update the Build Status Table” on page 107, to complete TCP/IP DES Feature COR service.

For reference, a sample VMFBLD command is shown below that can be used to rebuild specific objects within a given build list:

```
vmfbld ppf ppfname compname fn-blst fn-mod.module (serviced
```

where:

- *ppfname* and *compname* are the same as described in step 4 on page 127.
- *fn-blst* is the appropriate TCP/IP Feature feature build list file name. A complete list of TCP/IP feature build lists is provided in Appendix E, “TCP/IP Feature Build Lists” on page 137.
- *fn-mod* is the file name of module which incorporates the TEXT file that has been modified.

Also, if you have modified only one module, you may want to manually copy it into production, instead of using the TCP2PROD EXEC. If this is the case, use the VMFCOPY command that follows:

```
vmfcopy fn module fm-bld = = fm-prd (oldd repl sprodid 5735falt%tcpip prodid 5735falt%tcpip
```

where:

- *fn* is the name of the modified module.
- *fm-bld* is the file mode of the TCP/IP Feature build disk on which the module was built.
- *fm-prd* is the file mode of the TCP/IP Feature production disk where the module should reside.

The VMFCOPY command will update the VMSES/E PARTCAT file on the appropriate TCP/IP Feature production minidisk.

Appendix D. Modifying TCP/IP NFS Feature VMNFS Code

This appendix provides information to assist you in making local modifications to the TCP/IP NFS Feature VM NFS server module (VMNFS). Such modifications would be required for the NFS server to use a file handle encryption subroutine different from that in NFSFHCIP ASSEMBLE, or to change the way SMSG requests are validated (NFSSMSG C) or failed minidisk link attempts are reported (NFSBADPW C). Certain modifications may also require changes to the TCPBLC91 EXEC, which is the build list used to build the VMNFS module.

Note: The source for these three files is provided as part of the TCP/IP Feature for VM/ESA, in sample form, on the TCPMAINT 591 minidisk. The remainder of the TCP/IP NFS Feature source files are provided only as part of the TCP/IP Source Feature for VM/ESA; such files are shipped in packed format, and may need to be unpacked before they can be used.

For detailed information about installing and maintaining local modifications, see Chapters 5, 6, and 7 of the *VM/ESA Service Guide* (GC24-5838).

D.1 Modifying the NFSHCHIP ASSMBLE and TCPBLC91 EXEC Files

If you need to modify the NFSHCHIP ASSMBLE or TCPBLC91 EXEC files, you should follow the steps provided in Chapter 6, "Procedures for Local Service" of the *VM/ESA Service Guide* (GC24-5838). In so doing, the following substitutions may need to be made:

- **esalcl** should be: **5735falt**
- **esa** should be: **5735falt**
- *compname* should be: **tcpip** or **tcpipsfs**
- *appid* should be: **5735falt**
- *fm-local* should be the file mode of the 2C4 minidisk
- *fm-applyalt* should be the file mode of the 2A6 minidisk

You may also find some of the information provided in Appendix C, "Making Local Modifications to TCP/IP Feature Modules" on page 125 to be useful, such as the steps provided in C.1.1, "Prepare for Local Service."

Keep in mind that when you get to the following step in the *VM/ESA Service Guide*:

- "Rebuilding Objects"

you should return to using this program directory and continue with 7.2.2.4, "Update the Build Status Table" on page 80.

D.2 Modifying VMNFS C Source Files

If you need to modify the source for the NFSSMSG or NFSBADPW C files, use the information provided in Appendix C, “Making Local Modifications to TCP/IP Feature Modules” on page 125, especially that which is specific to “C and Pascal Source Modifications.”

Appendix E. TCP/IP Feature Build Lists

This appendix provides a complete list of the VMSES/E build lists used to maintain the TCP/IP Feature for VM/ESA product. This information has been provided to help you determine which build list to use with VMSES/E commands when you need to build or service specific TCP/IP Feature objects, and assist you with making local modifications. For more information about build list content and formats, see the *VMSES/E Introduction and Reference (GC24-5837)*.

The build lists identified in the tables that follow can be found on the P735FALT 2B2 (BASE1) minidisk. However, before using the information in a build list, the P735FALT 2D2 (DELTA) minidisk should be checked to determine whether that build list has been updated by service, so that the most current file is referenced.

Also, note that the minidisks shown under the "Build String" headings are default values for P735FALT minidisks. If a PPF override has been used in your environment to change Build String minidisks or SFS directories, use your values when determining which files are affected by a build list.

E.1 TCP/IP Feature for VM/ESA Build Lists

The Figure 19 lists the VMSES/E build lists used with the TCP/IP Feature for VM/ESA, and provides general information about the objects (files) managed by each build list.

<i>Figure 19 (Page 1 of 2). VMSES/E Build Lists - TCP/IP Feature for VM/ESA</i>			
Build List Name	VMSES/E Part Handler	Build String (Minidisk)	Build List Description / Affected Objects
TCPBL491	VMFBDCOM	BUILD1 (491)	Full-replacement objects built to the 491 minidisk
TCPBL492	VMFBDCOM	BUILD3 (492)	Full-replacement objects built to the 492 minidisk
TCPBLALL	VMFBTMLB	BUILD3 (492)	ALLMACRO MACLIB build list
TCPBLTRP	VMFBTMLB	BUILD3 (492)	TFTPRP MACLIB build list
TCPBLCOM	VMFBTMLB	BUILD3 (492)	COMMTXT TXTLIB build list
TCPBLGDD	VMFBTMLB	BUILD3 (492)	GDDMXD TXTLIB build list
TCPBLXAW	VMFBTMLB	BUILD3 (492)	XAWLIB TXTLIB build list
TCPBLDPI	VMFBTMLB	BUILD3 (492)	DPILIB TXTLIB build list
TCPBLRPC	VMFBTMLB	BUILD3 (492)	RPCLIB TXTLIB build list
TCPBLOLD	VMFBTMLB	BUILD3 (492)	OLDXLIB TXTLIB build list
Notes:			
1. Language Environment run-time library support must be available when building objects identified in this build list.			

Figure 19 (Page 2 of 2). VMSES/E Build Lists - TCP/IP Feature for VM/ESA

Build List Name	VMSES/E Part Handler	Build String (Minidisk)	Build List Description / Affected Objects
TCPBLXTL	VMFBDTLB	BUILD3 (492)	XTLIB TXTLIB build list
TCPBLX11	VMFBDTLB	BUILD3 (492)	X11LIB TXTLIB build list
TCPBLSNA	VMFBDLLB	BUILD1 (491)	SNALINK LOADLIB build list
TCPBLXNX	VMFBDLLB	BUILD1 (491)	XNX25 LOADLIB build list
TCPBLSNM	VMFBDLLB	BUILD1 (491)	SNMPLIB LOADLIB build list
TCPBLM91	VMFBDMOD	BUILD1 (491)	MODULE objects built to the 491 minidisk
TCPBLM92	VMFBDMOD	BUILD3 (492)	MODULE objects built to the 492 minidisk
TCPBLC91 (*)	VMFBDMOD	BUILD1 (491)	C-based MODULE objects built to the 491 minidisk
TCPBLC92 (*)	VMFBDMOD	BUILD3 (492)	C-based MODULE objects built to the 492 minidisk
TCPBLCN5 (*)	VMFBDMOD	BUILD7 (395)	C-based MODULE objects built to the 395 minidisk
TCPBLCSL	VMFBDCLB	BUILD1 (491)	TCPCSLIB CSLIB build list
TCKBLDES	VMFBDTLB	BUILD3 (492)	DESDUMMY TXTLIB build list
TCKBLKRB	VMFBDTLB	BUILD3 (492)	KRB TXTLIB build list
TCKBLKDB	VMFBDTLB	BUILD3 (492)	KDB TXTLIB build list
TCKBLBPL	VMFBDTLB	BUILD3 (492)	BPLDBM TXTLIB build list
TCKBLC91 (*)	VMFBDMOD	BUILD1 (491)	Kerberos C-based MODULE objects built to the 491 minidisk
TCKBLC92 (*)	VMFBDMOD	BUILD3 (492)	Kerberos C-based MODULE objects built to the 492 minidisk
Notes:			
1. Language Environment run-time library support must be available when building objects identified in this build list.			

E.2 TCP/IP DES Feature for VM/ESA Build Lists

The Figure 20 lists the VMSES/E build lists used with the TCP/IP DES Feature for VM/ESA, and provides general information about the objects (files) managed by each build list.

<i>Figure 20. VMSES/E Build Lists - TCP/IP DES Feature for VM/ESA</i>			
Build List Name	VMSES/E Part Handler	Build String (Minidisk)	Build List Description / Affected Objects
USKBL491	VMFBDTLB	BUILD1 (491)	Full-replacement objects built to the 491 minidisk
USKBLDES	VMFBDTLB	BUILD3 (492)	DES TXTLIB build list

Appendix F. Moving the TCP/IP Feature to SFS Directories

By default, the TCP/IP Feature for VM/ESA is installed to minidisks, as part of the VM/ESA Version 2 Release 4.0 System DDR, during the initial install of VM/ESA Version 2 Release 4.0 itself. However, you can move certain TCP/IP Feature minidisks — the service minidisks — to Shared File System (SFS) directories. Refer to Figure 11 in 5.3.1, “DASD Requirements for the TCP/IP Feature for VM/ESA” on page 24 to see which minidisks can reside in SFS space. When service disks are moved to SFS directories, you can use either the default file pool (VMSYS) or a file pool of your choosing.

A summary of the steps necessary to move TCP/IP Feature service minidisks to SFS space are:

- Allocate space in the user-defined (or default) file pool
- Provide the installation user ID, P735FALT, access to the file pool
- Create the necessary TCP/IP Feature subdirectories
- Copy files from minidisks to the new SFS subdirectories
- Create a PPF override, if not using default file pool or subdirectory names.

Where to Next

You need to do one of the following:

- If you want to place the TCP/IP Feature into SFS directories using **5735FALT PPF file defaults**, you need to continue with instructions provided in the *VM/ESA Installation Guide*, in the appendix titled “Moving Components to SFS Directories.”
- If you want to place the TCP/IP Feature into your own **user-defined file pool or SFS directories**, continue with the instructions in F.1.1, “Setup the SFS File Pool and Required Directories” on page 141.

After you have chosen one of the previous options and completed the steps required (whether provided in this appendix or in the *VM/ESA Installation Guide*) you need to return to 6.2.3, “Enable the TCP/IP Feature” on page 36 and complete the installation of the TCP/IP Feature for VM/ESA.

F.1.1 Setup the SFS File Pool and Required Directories

Notes:

1. The steps that follow help you determine TCP/IP Feature file pool space requirements, enroll the P735FALT user ID in a file pool, and define the required SFS directories. If not all of these steps are required — for example, you are changing only SFS directory names — adapt these instructions as needed for your environment.
2. The steps that follow assume the use of a user-defined SFS file pool name; if you are using the VM/ESA default file pool name (VMSYS), you should substitute “VMSYS” in place of the text “user-defined file pool” or the variable *userfilepool*, when appropriate.
3. For information about planning for, generating, and managing a file pool and server, see *VM/ESA File Pool Planning, Administration and Operation* (SC24-5751).

- 1** Determine the number of 4K blocks required for your SFS directories by adding up the 4K block requirements for each SFS directory you plan to use. If you intend to use *all* of the TCP/IP Feature SFS directory defaults, the 4K block requirements are summarized in Figure 11 on page 24.

This information will be used when the P735FALT user ID is enrolled in the user-defined file pool.

- 2** Enroll user P735FALT in the user-defined file pool, using the ENROLL USER command:

```
ENROLL USER P735FALT userfilepool: (BLOCKS blocks)
```

where *blocks* is the number of 4K blocks you calculated in the previous step.

Note: This must be done from a user ID that is an administrator for the user-defined file pool.

- 3** Determine if there are enough blocks available in the file pool to accommodate the TCP/IP Feature for VM/ESA. This information can be obtained via the QUERY FILEPOOL STATUS command. Near the end of the output from this command is a list of minidisks in the file pool and the number of blocks free. If the number of blocks free is smaller than the total number needed to install the TCP/IP Feature, you need to add space to the file pool before you continue with this process. See *VM/ESA File Pool Planning, Administration and Operation* for information about adding space to a file pool.

- 4 Use the CREATE DIRECTORY command to create the required subdirectories; the default subdirectories are listed in Figure 11 on page 24. If necessary, refer to the *VM/ESA CMS Command Reference* for more information about the CREATE DIRECTORY command.

```
set filepool userfilepool:  
create directory dirid  
create directory dirid
```

dirid is the name of the SFS directory you're creating, such as the default names:

```
create directory userfilepool:p735falt.tcpip  
create directory userfilepool:p735falt.tcpip.local  
create directory userfilepool:p735falt.tcpip.sample  
create directory userfilepool:p735falt.tcpip.delta  
create directory userfilepool:p735falt.tcpip.applyalt  
create directory userfilepool:p735falt.tcpip.applyprod  
create directory userfilepool:p735falt.tcpip.object
```

- 5 If you intend to use an SFS directory as the work space for the P735FALT user ID, include the following IPL control statement in the P735FALT directory entry (after the INCLUDE TCPCMSU statement):

```
IPL CMS PARM FILEPOOL userfilepool
```

This will cause CMS to automatically access the P735FALT's top directory as file mode A.

F.1.2 Copy Minidisk Files to SFS Directories

- 1 Copy the files from the TCP/IP Feature for VM/ESA minidisks (or from the VMSYS file pool, if the TCP/IP Feature is already installed there) to your new user-defined SFS file pool and directories, using the VMFCOPY command.

Note: Repeat the ACCESS and VMFCOPY commands that follow for each minidisk you need to copy. If necessary, see Figure 11 on page 24 for TCP/IP Feature default minidisk addresses and SFS directory names.

```
access vdev e  
access dirid f  
vmfcopy * * e = f (prodid 5735falt%tcpip olddate replace
```


where:

- *vdev* is the minidisk from which you are copying files.
- *dirid* is the name of the (target) SFS directory to which you are copying files.
- **5735falt%tcpip** is the PRODID defined within the 5735FALT PPF file, for both the minidisk and SFS components of the TCP/IP Feature.

The VMFCOPY command will update the VMSES PARTCAT file on the target directory.

F.1.3 Create a Product Parameter File (PPF) Override

This section provides information to help you create a product parameter file (PPF) override. The example used in this section changes the name of the SFS file pool where TCP/IP Feature files reside. See the *VMSES/E Introduction and Reference* for more information about PPF file overrides.

Note: Do **not** directly modify the product-supplied 5735FALT \$PPF or 5735FALT PPF files to change the VMSYS file pool name or any other installation parameters. If the 5735FALT \$PPF file is serviced, the existing \$PPF file will be replaced, and any changes to that file will be lost. By creating your own \$PPF override, your updates will be preserved.

The following process describes changing the TCP/IP Feature default file pool name from “VMSYS” to “MYPOOL1”:

- 1 Create a new \$PPF override file or edit an existing override file.

xedit *overname \$ppf fm2*

overname is the PPF override file name (such as “mytcpip”) that you want to use.

fm is an appropriate file mode. If you create this file yourself, specify a file mode of A.

If you modify an existing override file, specify a file mode of A or D, based on where the file currently resides (A being the file mode of a R/W 191 minidisk, or equivalent; D, that of the MAINT 51D minidisk).

- 2** Create (or modify as required) the Variable Declarations (:DCL.) section for the **TCPIPSFS** override area so it resembles the :DCL. section that follows:

```

:OVERLIST. TCPIPSFS
:TCPIPSFS. TCPIP 5735FALT
*
*=====
* Override for TCPIPSFS SFS Component -- File Pool Name Change      *
*=====
:DCL. UPDATE
&191  DIR  MYPOOL1:P735FALT           * A-disk
&LMODZ DIR  MYPOOL1:P735FALT.TCPIP.LOCAL * Local modifications
&SAMPZ DIR  MYPOOL1:P735FALT.TCPIP.SAMPLE * Sample files
&DELTZ DIR  MYPOOL1:P735FALT.TCPIP.DELTA * Product service
&APPLX DIR  MYPOOL1:P735FALT.TCPIP.APPLYALT * AUX and Inv files (ALT)
&APPLZ DIR  MYPOOL1:P735FALT.TCPIP.APPLYPROD * AUX and Inventory file
&BAS1Z DIR  MYPOOL1:P735FALT.TCPIP.OBJECT * Base disk
&BAS2Z DIR  MYPOOL1:P735FALT.TCPIP.SOURCE * Source code (Optional)
:EDCL.
:END.

```

This override will update the TCPIPSFS override area :DCL. section of the 5735FALT \$PPF file.

- 3** Save your changes when they are complete.

====> file = = *fm*

where *fm* is the file mode where your override file resides (or A if you are creating one).

- 4** If your \$PPF override file was created at file mode A, copy it to file mode D — the Software Inventory minidisk (MAINT 51D).

copyfile *overname* \$ppf *fm* = = d (olddate

- 5** Compile your changes to create the usable PPF file, ***overname* PPF**.

vmfppf *overname* **tcpipsfs**

where *overname* is the file name of your \$PPF override file.

Now that the ***overname* PPF** file has been created, specify “*overname*” instead of “5735FALT” as the PPF name to be used for any VMSES/E commands that require a PPF name.

Appendix G. Copying TCP/IP Feature Client Code to the Y-Disk

To simplify access to TCP/IP client functions for your user community, you may find it desirable to copy all, or a subset of, the TCP/IP Feature client code to the VM/ESA product code disk. Doing so will avoid the need for users to additionally link and access the TCPMAINT 592 minidisk.

As well, applications that use certain programming interfaces may require TCP/IP-specific information to be available for proper operation. For example, information defined in the TCPIP DATA file is referenced by:

- the OpenEdition VM Sockets Library to correctly identify the TCP/IP virtual machine when the TCPIPID environment variable is not set. See the *OpenEdition for VM/ESA Sockets Reference* (SC24-5741) for more information.
- VMLIB Callable Services Library (CSL), by the DMSTCD routine. See the *VM/ESA CMS Application Development Reference* (SC24-5762) for more information about the DMSTCD CSL routine.
- various functions provided as part of the CMS REXX Socket library. See the *VM/ESA REXX/VM Reference* (SC24-5770) for more information.

To copy TCP/IP Feature for VM/ESA client files to the Product Code minidisk (typically the MAINT 19E minidisk — the Y-disk), use the following procedure **after** you have installed TCP/IP Feature and *all* TCP/IP features used in your environment.

Warning - File Overlap Considerations

Before you copy *any* TCP/IP Feature for VM/ESA client files to the Y-disk (or a similar “*common use*” minidisk), you should first determine whether any conflicts exist between the TCP/IP client files you choose to copy, and those present on the target (Y-disk) minidisk. If any file conflicts are found, these should be addressed and resolved with respect to your installation environment before you continue with the procedure that follows.

Notes:

1. You will need to repeat this procedure each time you apply service to the TCP/IP or TCP/IP DES features.
2. Use discretion when wildcards (*) are used for both the *fn* (file name) and *ft* (file type) parameters of the VMFCOPY commands shown in this section, since files that exist on the Y-disk can be replaced with similarly-named TCP/IP counterpart files. The overlay of certain files may be warranted in some cases, and may be undesirable for others.

An example of this latter case is cited here. Both the TCP/IP Feature for VM/ESA and the IBM Language Environment for MVS and VM Release 8 have several **H** files that are identically named, but differ in content. These files are:

FCNTL	H	IF	H	IN	H	INET	H
IOCTL	H	NETDB	H	RESOURCE	H	SOCKET	H
STRINGS	H	TTYDEV	H	TYPES	H	UIO	H

An overlay of the IBM Language Environment **H** files (already present on the Y-disk) by their TCP/IP counterparts may create problems when applications that expect (and rely upon) the content of the IBM Language Environment files are developed or rebuilt.

- 1 Log on the **MAINT** (or equivalent) user ID.
- 2 Process TCP/IP Feature files used by or available to TCP/IP clients.

link tcpmaint 592 592 rr
access 592 e
access 19e f

Note: If the Y-disk is not defined as the 19E minidisk in your environment, substitute the appropriate address for this minidisk.

vmfcopy *fn ft e = = f2* (olddate replace sprodid 5735falt%tcpip prodid 5735falt%tcpip

The VMFCOPY command will update the VMSES/E PARTCAT file on the Y-disk.

Wildcards (*) can be substituted for *fn* (file name) and *ft* (file type), but should be used with discretion.

- 3 Process files associated with each TCP/IP feature that you have installed or serviced.
 - Process TCP/IP DES Feature files used by or available to TCP/IP clients.

vmfcopy *fn ft e = = f2* (olddate replace sprodid 5735falu%kerbdes prodid 5735falu%kerbdes

The VMFCOPY command will update the VMSES/E PARTCAT file on the Y-disk.

Wildcards (*) can be substituted for *fn* (file name) and *ft* (file type), but should be used with discretion.

- 4 (Optional) Erase any TCP/IP Feature files that you do not want on the Y-disk — for example, any MAP files that correspond to TCP/IP Feature modules re-built during service. Refer to the VMSES/E PARTCAT file on Y-disk to determine which files are associated with TCP/IP Feature.

Note: Additional information about the various TCP/IP Feature client files, and their association with specific TCP/IP functions, is available on-line via the TCP/IP Feature home page on the World Wide Web. The URL for this home page is:

<http://www.ibm.com/s390/vm/related/tcpip/>

vmferase file filename filetype f

See the *VMSES/E Introduction and Reference* for more information about the VMFERASE command and options that may help you remove specific files.

- 5** Re-save the CMS saved system, to return the Y-disk to shared status. See the “Placing (Serviced) Components into Production” section of the *VM/ESA Service Guide* for detailed information about how to save the CMS saved system.

Appendix H. Disabling the TCP/IP and TCP/IP NFS Features

If you are running VM/ESA Version 2 Release 4.0, or higher, and had previously enabled either the TCP/IP NFS Feature or the TCP/IP Feature for VM/ESA, but are no longer authorized for one of these features, you must explicitly disable that feature. To disable the TCP/IP Feature, perform the steps that follow.

- 1** Logon the installation user ID, **P735FALT**.

The PROFILE EXEC provided for this user ID (as part of the VM/ESA Version 2 Release 4.0 System DDR) contains ACCESS commands for the required VMSES/E minidisks — the VMSES/E code minidisk (MAINT 5E5, by default) and the VMSES/E Software Inventory minidisk (MAINT 51D, by default).

- 2** Issue the CMS QUERY DISK command to verify the VMSES/E code and Software Inventory minidisks are correctly linked and accessed.

query disk

Verify the MAINT 5E5 minidisk is accessed as file mode **B**, and is linked **R/O**.

Verify the MAINT 51D minidisk is accessed as file mode **D**, and is linked **R/W**.

Note: If another user has the MAINT 51D minidisk linked in write (R/W) mode, you'll obtain only read (R/O) access to this minidisk. If this occurs, you'll need to have that user re-link the 51D disk in read-only (RR) mode; then, you need issue the appropriate LINK and ACCESS commands for the 51D minidisk. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

- 3** If necessary, establish the appropriate access to the VMSES/E minidisks.

- a** Establish read access to the VMSES/E code minidisk.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

- b** Establish write access to the Software Inventory minidisk.

```
link maint 51d 51d mr
access 51d d
```

4 Set the TCP/IP Feature for VM/ESA to the disabled state.

vmfins disable ppf *ppfname compname*

If you are disabling the TCP/IP Feature, specify **5735FALT** for *ppfname*. For *compname*, use **tcpip** if the TCP/IP Feature default minidisk environment has been maintained; use **tcpipsfs** if the service disks were moved to Shared File System directories.

If you are disabling the TCP/IP NFS Feature, specify **5735NFST** for *ppfname*. For *compname*, use **nocomp**.

This command will:

- set the TCP/IP or TCP/IP NFS Feature as DISABLED in VMSES/E and CP
- create a *ppfname* PRODSYS file on the A-disk, which contains a CP system configuration PRODUCT statement with a state of: DISABLED

5 In order to **retain the DISABLED state** for the TCP/IP or TCP/IP NFS Feature, **update the CP system configuration file** with the information in the *ppfname* PRODSYS file.

The *ppfname* PRODSYS file was created by VMFINS in the previous step. You need to update the CP system configuration file so that the next time you IPL your system, the TCP/IP or TCP/IP NFS Feature will be in the DISABLED state. If you are not authorized to update the CP system configuration file, contact your CP system administrator.

The CP system configuration file resides on the CP “parm” disk (the MAINT CF1 or CF2 minidisk); by default, this file is named: SYSTEM CONFIG. The necessary updates need to be made to the “PRODUCT ENABLE/DISABLE INFORMATION” section of this file. You will need to replace the current ENABLED entry for PRODID 5735FALT or PRODID 5735NFST (the TCP/IP or TCP/IP NFS Feature) with the entry from the *ppfname* PRODSYS file (created by VMFINS in the previous step). If necessary, refer to the *VM/ESA Planning and Administration* manual for more information about the CP system configuration file.

6 Shutdown the applicable server (TCPIP or VMNFS), if this has not already been done.

Reader's Comments

TCP/IP Feature for VM/ESA

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1	2	3	4	5	N	

	Satisfaction					
	1	2	3	4	5	N
Ease of product installation						
Time required to install the product						
Contents of program directory						
Readability and organization of program directory tasks						
Necessity of all installation tasks						
Accuracy of the definition of the installation tasks						
Technical level of the installation tasks						
Installation verification procedure						
Ease of customizing the product						
Ease of migrating the product from a previous release						
Ease of putting the system into production after installation						
Ease of installing service						

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- How long did it take to install this product? _____
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